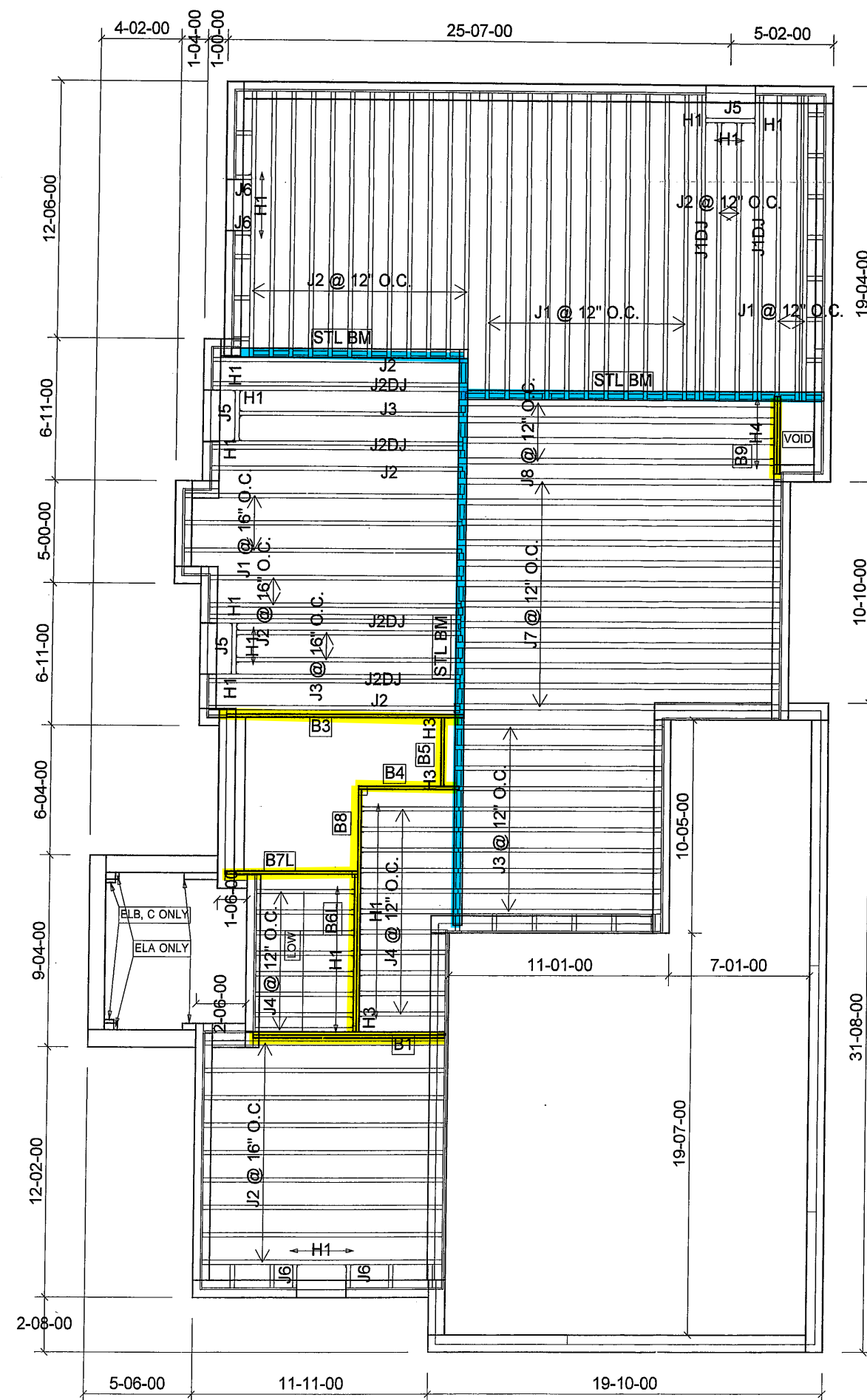


FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-7C BAROSSA 7
ELEVATION: A,B,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
FIGURE 1. CANTILEVERED JOISTS
INCLUDING CANT' OVER BRICK REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURES 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

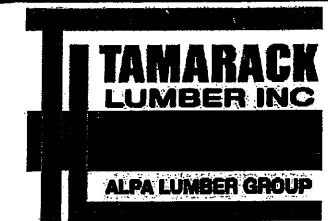


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	17
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	28
J2DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	13
J4	6-00-00	9 1/2" NI-40x	1	19
J5	4-00-00	9 1/2" NI-40x	1	3
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	12
J8	16-00-00	9 1/2" NI-80	1	4
B3	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
19	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
9	H1	IUS2.56/9.5
2	H3	HUS1.81/10
1	H3	HUS1.81/10
4	H4	IUS3.56/9.5

TOWN OF BRADFORD WEST GWILLIMBURY
BUILDING DEPARTMENT
PLANS EXAMINED
ONTARIO BUILDING CODE APPLIES
DATE: 2018-11-02
INSPECTOR: BG

SITE COPY



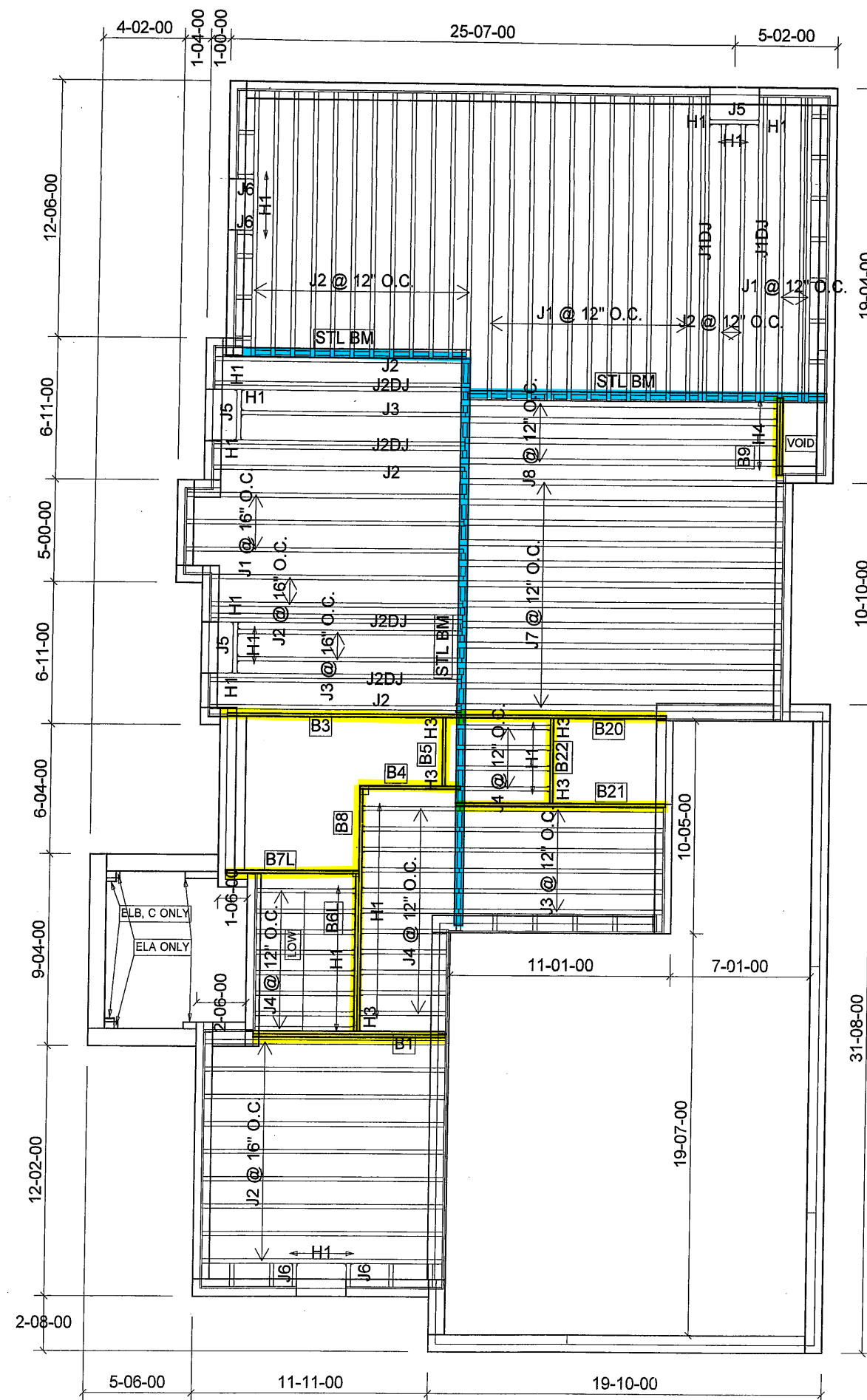
FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-7C BAROSSA 7
ELEVATION: A,B,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
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SEE FIGURES 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

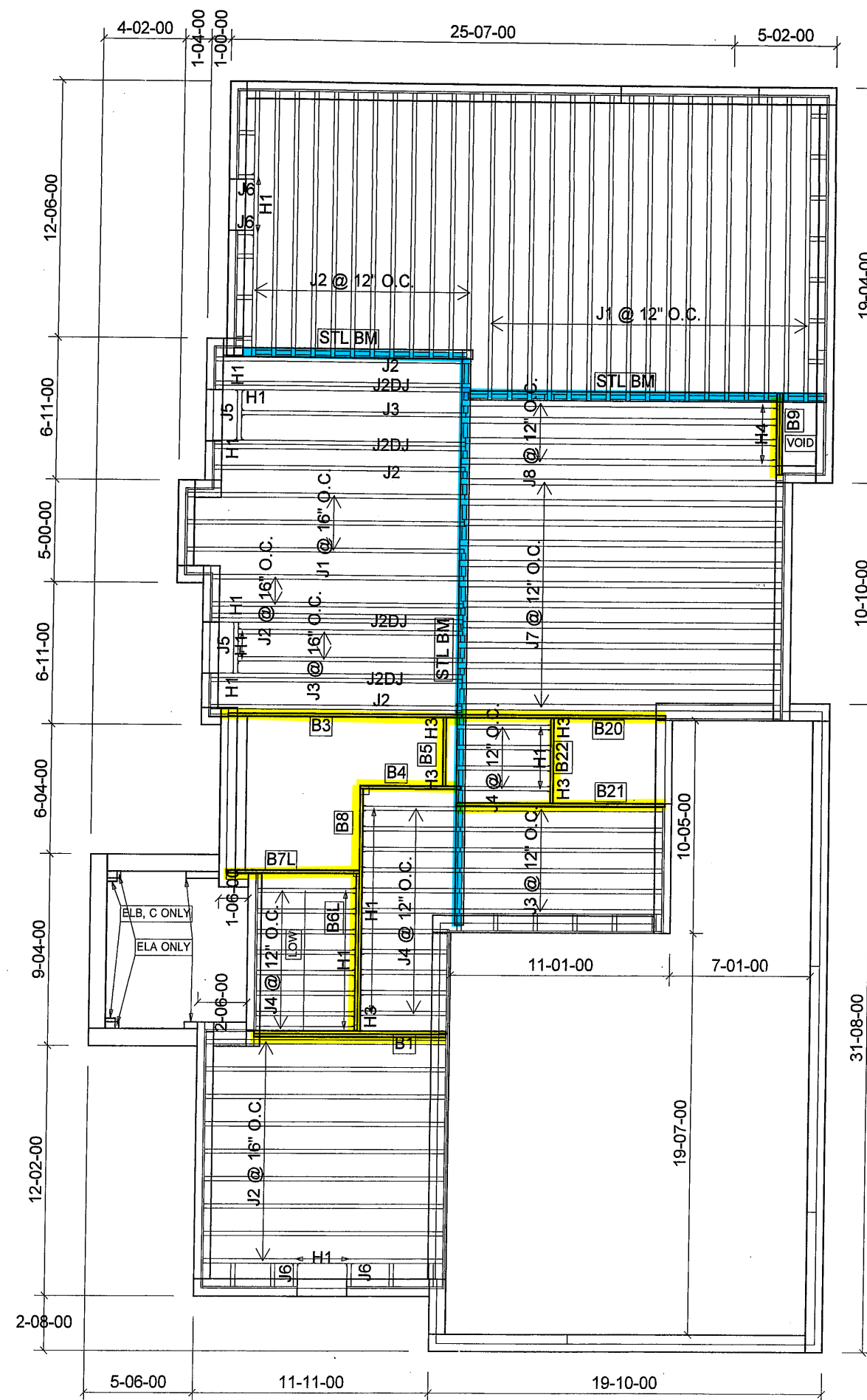
SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	17
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	28
J2DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	9
J4	6-00-00	9 1/2" NI-40x	1	23
J5	4-00-00	9 1/2" NI-40x	1	3
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	12
J8	16-00-00	9 1/2" NI-80	1	4
B20	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B21	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B22	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

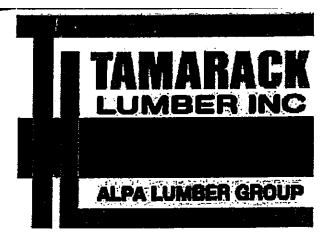
Connector Summary		
Qty	Manuf	Product
23	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
9	H1	IUS2.56/9.5
4	H3	HUS1.81/10
1	H3	HUS1.81/10
4	H4	IUS3.56/9.5

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	20
J2	14-00-00	9 1/2" NI-40x	1	26
J2DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	9
J4	6-00-00	9 1/2" NI-40x	1	23
J5	4-00-00	9 1/2" NI-40x	1	2
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	12
J8	16-00-00	9 1/2" NI-80	1	4
B20	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B21	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B22	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
23	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
4	H3	HUS1.81/10
1	H3	HUS1.81/10
4	H4	IUS3.56/9.5



FROM PLAN DATED: JAN 2017

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY EAST

MODEL: S38-7C BAROSSA 7

ELEVATION: A,B,C

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

REVISION:

NOTES:

REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
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I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURES 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 lb/ft

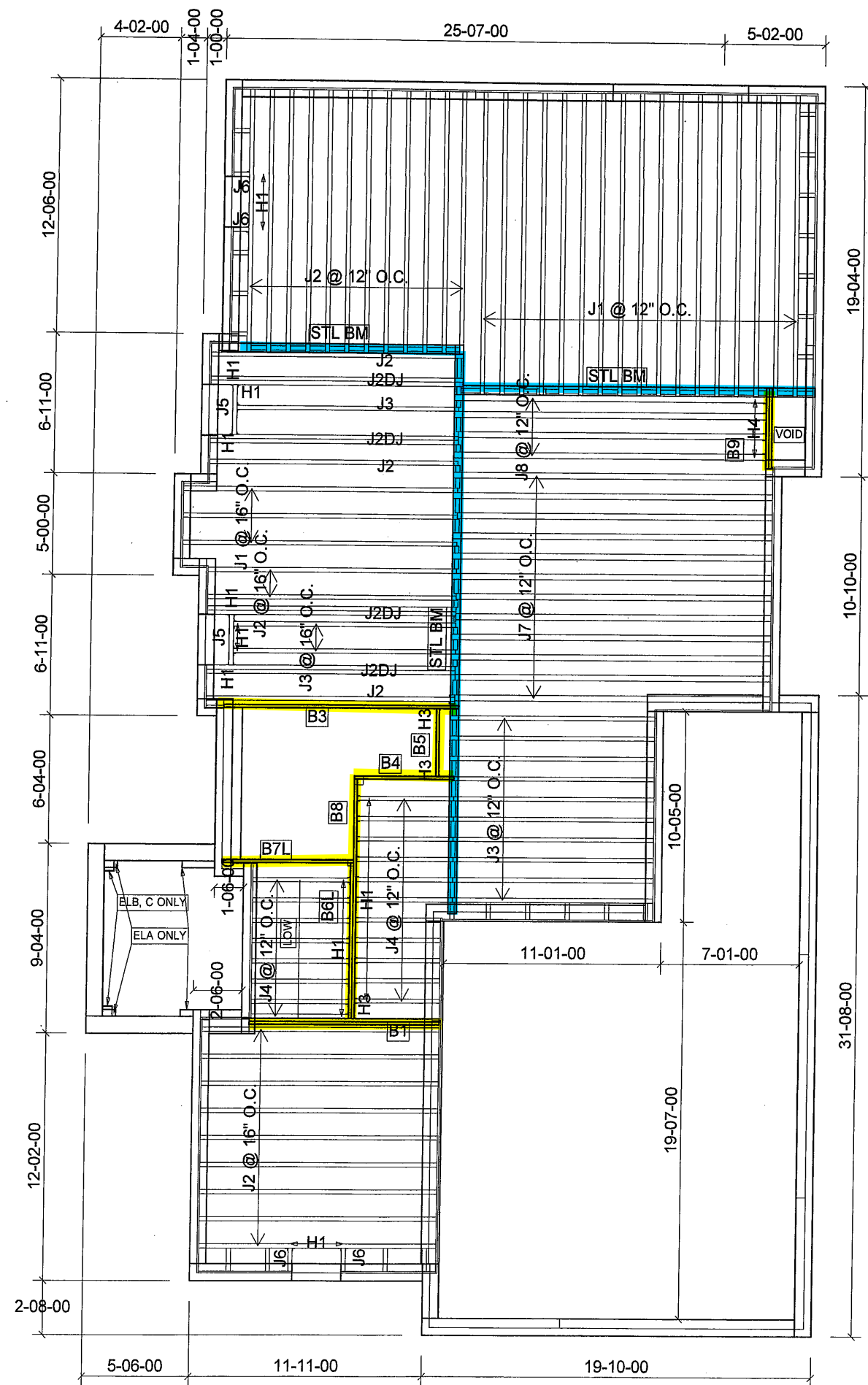
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

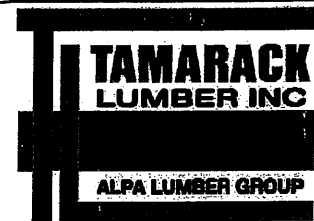
SUNKEN WITH WOD. & WOB.

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	20
J2	14-00-00	9 1/2" NI-40x	1	26
J2DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	13
J4	6-00-00	9 1/2" NI-40x	1	19
J5	4-00-00	9 1/2" NI-40x	1	2
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	12
J8	16-00-00	9 1/2" NI-80	1	4
B3	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
19	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
2	H3	HUS1.81/10
1	H3	HUS1.81/10
4	H4	IUS3.56/9.5



FROM PLAN DATED: JAN 2017

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY EAST

MODEL: S38-7C BAROSSA 7

ELEVATION: A,B,C

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
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REINFORCEMENT REQUIREMENTS.
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CHASE AND FIELD CUT OPENINGS
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CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.

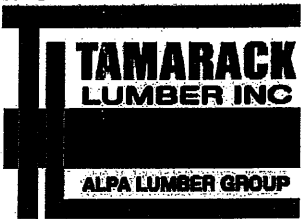
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

STANDARD WITH WOD & WOB

SITE COPY



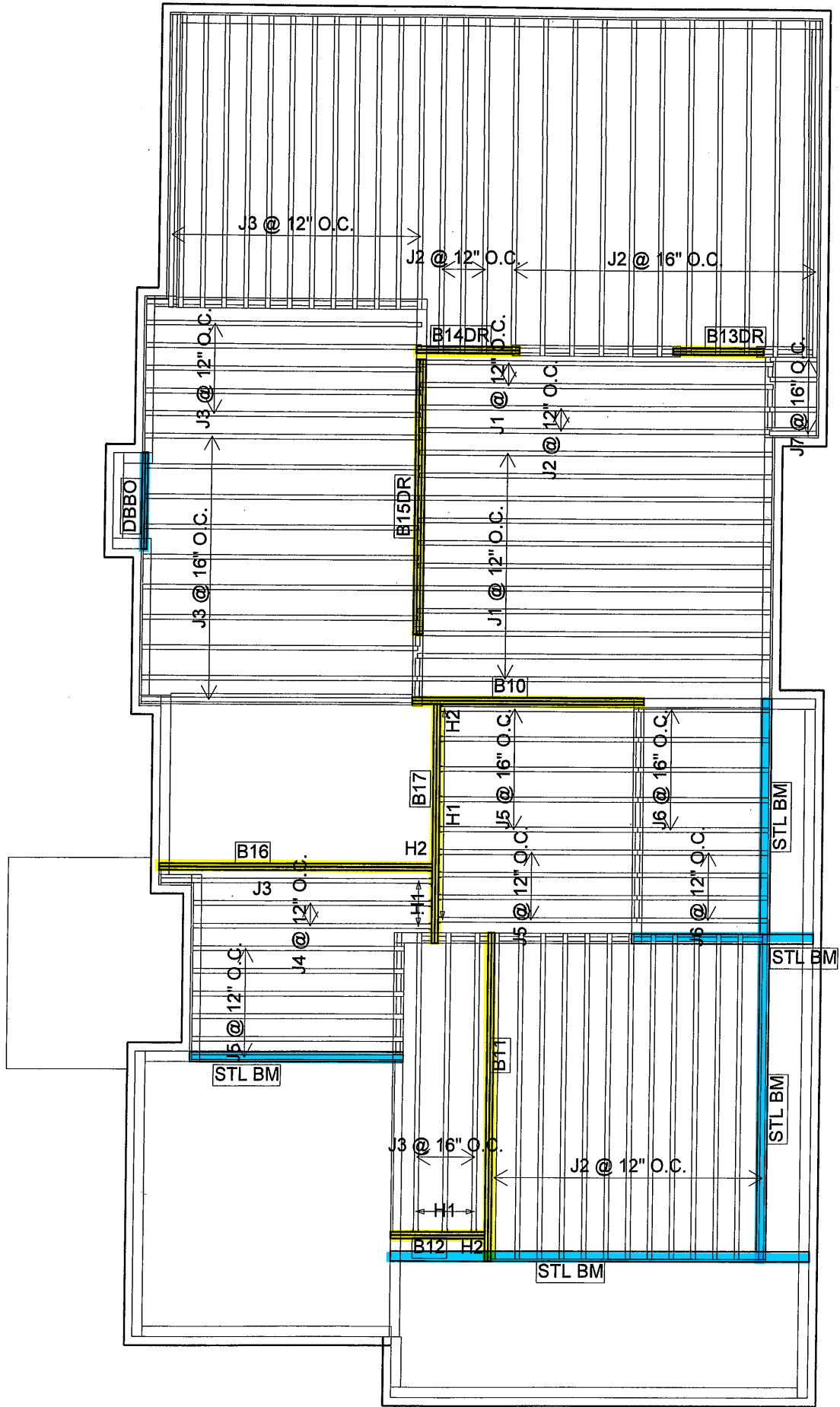
FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-7C BAROSSA 7
ELEVATION: A
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
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SEE FIGURE 7 TABLES 4 & 5 FOR
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FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. CERAMIC TILE
APPLICATION AS PER O.B.C. 9.30.6
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

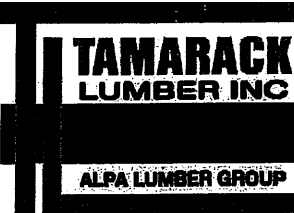
2nd FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	13
J2	16-00-00	9 1/2" NI-40x	1	30
J3	14-00-00	9 1/2" NI-40x	1	32
J4	12-00-00	9 1/2" NI-40x	1	2
J5	10-00-00	9 1/2" NI-40x	1	15
J6	8-00-00	9 1/2" NI-40x	1	9
J7	4-00-00	9 1/2" NI-40x	1	4
B11	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15DR	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B10	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B17	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
15	H1	IUS2.56/9.5
3	H2	HGUS410



FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-7C BAROSSA 7
ELEVATION: B,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

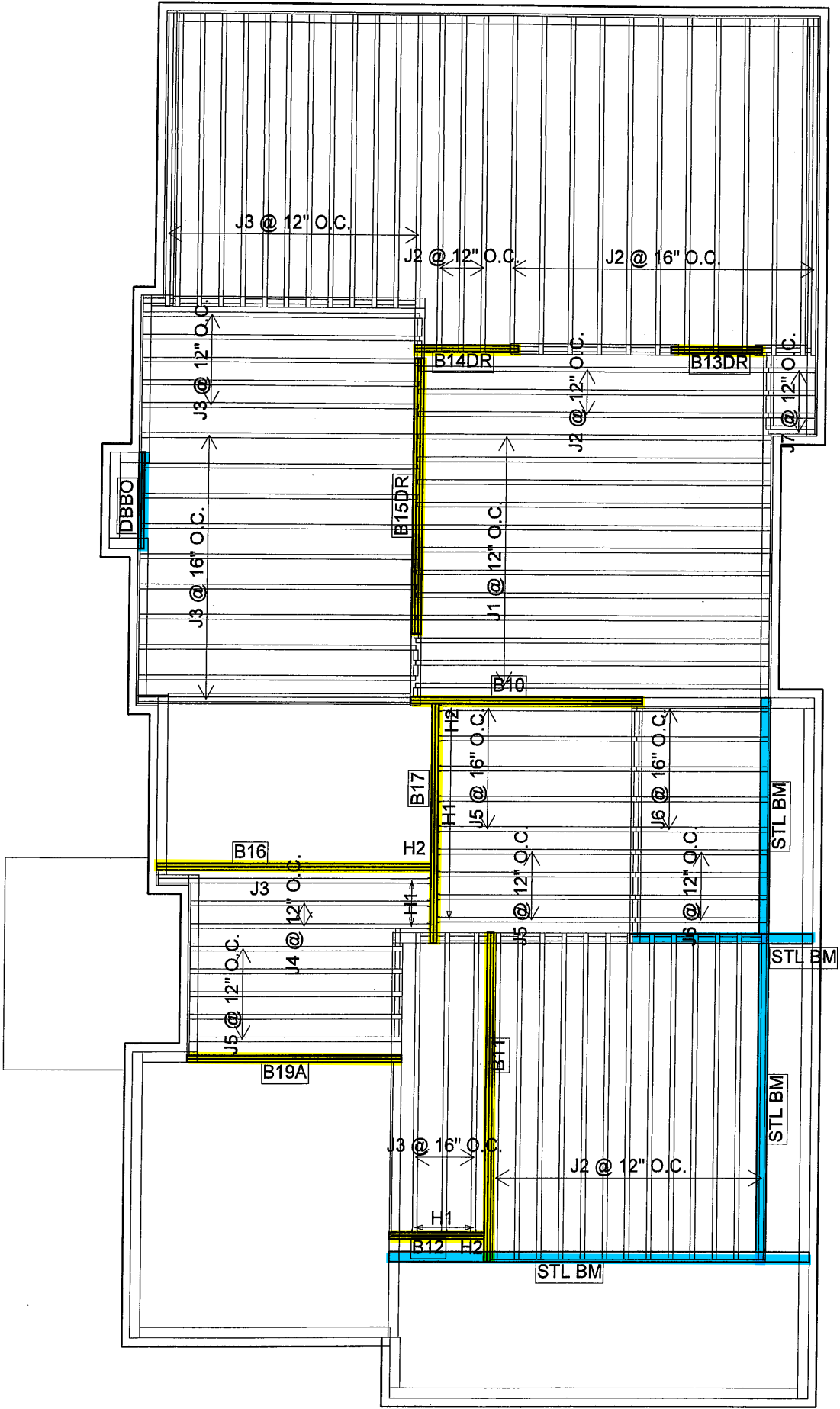
NOTES:
REFER TO THE NORDIC
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SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
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SEE FIGURE 7 TABLES 4 & 5 FOR
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FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. CERAMIC TILE
APPLICATION AS PER O.B.C. 9.30.6
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

2nd FLOOR

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	12
J2	16-00-00	9 1/2" NI-40x	1	31
J3	14-00-00	9 1/2" NI-40x	1	32
J4	12-00-00	9 1/2" NI-40x	1	2
J5	10-00-00	9 1/2" NI-40x	1	14
J6	8-00-00	9 1/2" NI-40x	1	9
J7	4-00-00	9 1/2" NI-40x	1	4
B11	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15DR	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B10	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B17	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B19A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
15	H1	IUS2.56/9.5
3	H2	HGUS410



SITE COPY

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
3269 NORTH SERVICE ROAD
BURLINGTON, ON
by CZ
Sep. 15, 2017 11:53

PROJECT
J7-1ST FL.wwb

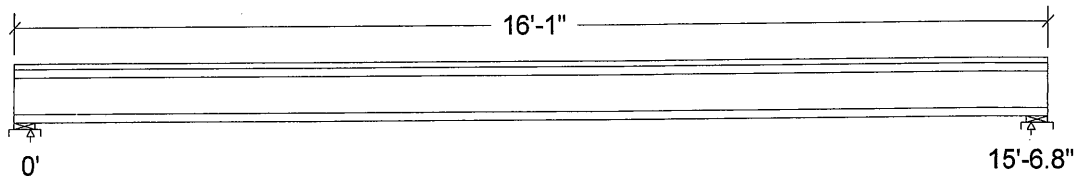
Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			15.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	117		117
Live	311		311
Factored:			
Total	613		613
Bearing:			
Resistance			
Joist	1893		1893
Support	8609		8609
Des ratio			
Joist	0.32		0.32
Support	0.07		0.07
Load case	#2		#2
Length	4		4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.00		1.00

Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c.

Supports: All - Lumber Sill plate, No.1/No.2
Total length: 16'-1.0"; 5/8" nailed and glued OSB sheathing
This section PASSES the design code check.

Limit States Design using CSA-O86-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 613	Vr = 1895	lbs	Vf/Vr = 0.32
Moment (+)	Mf = 2385	Mr = 8958	lbs-ft	Mf/Mr = 0.27
Perm. Defl'n	0.06 = <L/999	0.52 = L/360	in	0.12
Live Defl'n	0.17 = <L/999	0.39 = L/480	in	0.43
Total Defl'n	0.23 = L/811	0.78 = L/240	in	0.30
Bare Defl'n	0.19 = <L/999	0.52 = L/360	in	0.36
Vibration	Lmax = 15'-7	Lv = 17'-5	ft	
Defl'n	= 0.029	= 0.042		0.70

SITE COPY

DWG NO. TAM 9728-18
STRUCTURAL
COMPONENT ONLY



Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	8958	1.00	1.00	-	1.000	-	-	-	#2
EI	324.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake

L=live (use, occupancy) Ls=live (storage, equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

Deflection: E_Ieff = 367e06 lb-in² K= 4.94e06 lbs

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1. **CONFORMS TO OBC 2012**
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



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DWG NO. TAM 9720-18
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
3269 NORTH SERVICE ROAD
BURLINGTON, ON
by CZ
Sep. 15, 2017 11:53

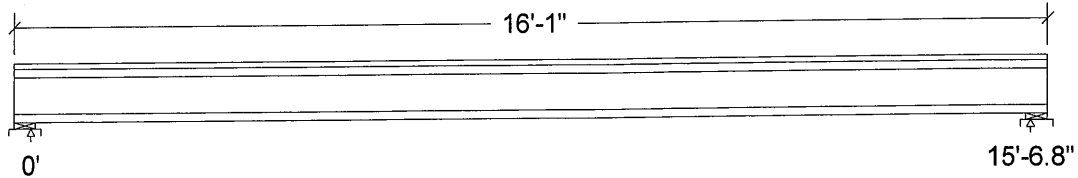
PROJECT
J1-2ND FL.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 6.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			15.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	117		117
Live	311		311
Factored:			
Total	613		613
Bearing:			
Resistance			
Joist	1893		1893
Support	7072		7072
Des ratio			
Joist	0.32		0.32
Support	0.09		0.09
Load case	#2		#2
Length	4		4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.15		1.15

Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.

Supports: All - Lumber Sill plate, No.1/No.2

Total length: 16'-1.0"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA-O86-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 613	Vr = 1895	lbs	Vf/Vr = 0.32
Moment (+)	Mf = 2385	Mr = 4824	lbs-ft	Mf/Mr = 0.49
Perm. Defl'n	0.09 = <L/999	0.52 = L/360	in	0.16
Live Defl'n	0.23 = L/819	0.39 = L/480	in	0.59
Total Defl'n	0.31 = L/595	0.78 = L/240	in	0.40
Bare Defl'n	0.27 = L/703	0.52 = L/360	in	0.51
Vibration	Lmax = 15'-7	Lv = 16'-9	ft	
Defl'n	= 0.033	= 0.042	in	0.80

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DWG NO. TAM 9729-18
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake

L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

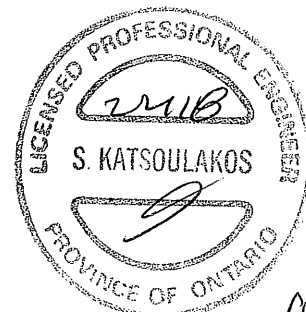
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:Deflection: E_Ieff = 258e06 lb-in² K= 4.94e06 lbs

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1. CONFORMS TO OBC 2012
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



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DWG NO. TAM 9729-18
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B1(i2403)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

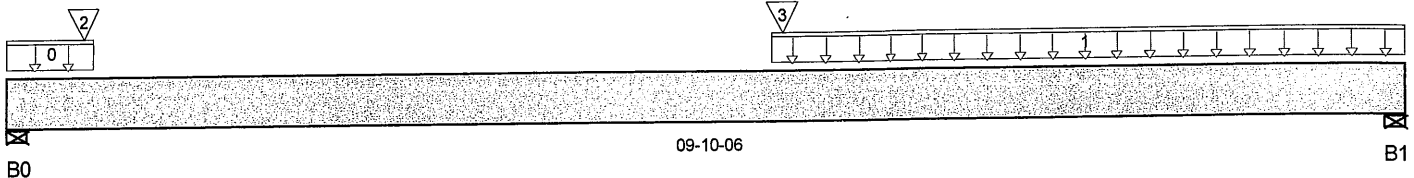
Description: Designs\Flush Beams\Basment\Flush Beams\B1(i2403)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 09-10-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	428 / 0	349 / 0		
B1, 4-3/8"	468 / 0	230 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E2(i889)	Unf. Lin. (lb/ft)	L	00-00-00	00-07-08		81			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	05-04-08	09-10-06	28	11			n/a
2	E2(i889)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	119	142			n/a
3	B6L(i2420)	Conc. Pt. (lbs)	L	05-05-06	05-05-06	650	292			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,473 ft-lbs	12,704 ft-lbs	27.3%	1	05-05-06
End Shear	919 lbs	5,785 lbs	15.9%	1	08-08-08
Total Load Defl.	L/889 (0.126")	0.467"	27%	4	05-01-04
Live Load Defl.	L/999 (0.084")	n/a	n/a	5	05-01-04
Max Defl.	0.126"	1"	12.6%	4	05-01-04
Span / Depth	11.8	n/a	n/a		00-00-00

Bearing Supports

B0	Wall/Plate	3-1/2" x 1-3/4"	1,079 lbs	33%	14.4%	Unspecified
B1	Wall/Plate	4-3/8" x 1-3/4"	990 lbs	24.2%	10.6%	Unspecified

Notes

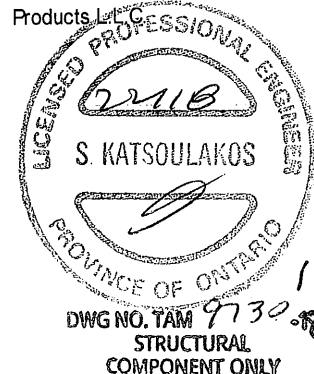
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i2412)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

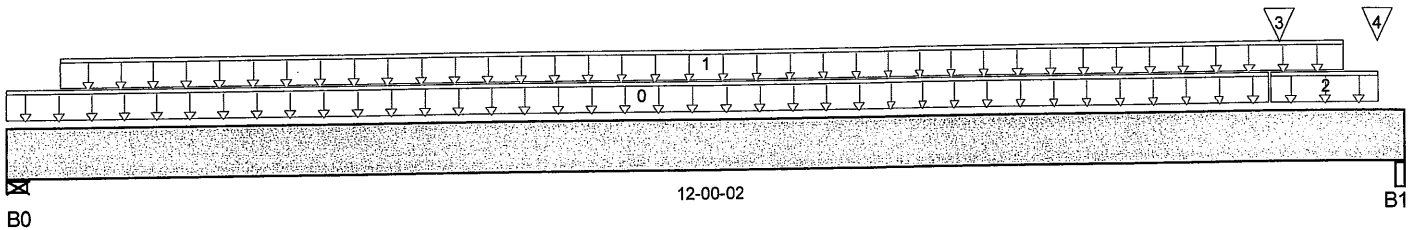
Description: Designs\Flush Beams\Basement\Flush Beams\B3(i2412)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-00-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	234 / 0	598 / 0		
B1, 5-1/4"	612 / 0	803 / 0		

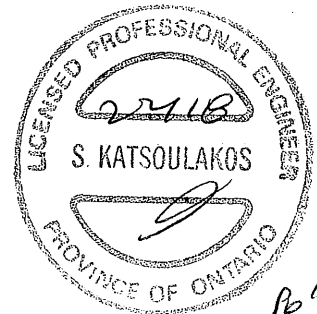
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-10-08	9	3			n/a
1	14(i918)	Unf. Lin. (lb/ft)	L	00-05-08	11-06-00	27	96			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	10-10-08	11-09-08	11				n/a
3	B5(i2405)	Conc. Pt. (lbs)	L	10-11-06	10-11-06	433	221			n/a
4	13(i917)	Conc. Pt. (lbs)	L	11-09-04	11-09-04		15			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,417 ft-lbs	8,258 ft-lbs	29.3%	0	06-02-00
End Shear	1,690 lbs	5,785 lbs	29.2%	1	10-09-06
Total Load Defl.	L/594 (0.227")	0.562"	40.4%	4	06-02-00
Live Load Defl.	L/999 (0.069")	n/a	n/a	5	06-02-00
Max Defl.	0.227"	1"	22.7%	4	06-02-00
Span / Depth	14.2	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 1-3/4"	837 lbs	25.1%	11%	Unspecified
B1 Beam	5-1/4" x 1-3/4"	1,922 lbs	39.2%	17.2%	Unspecified

Notes



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BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B3(i2412)

Specifier:

Designer: CZ

Company:

Misc:

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

CONFORMS TO OBC 2012

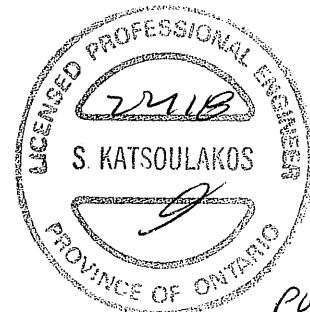
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i2346)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

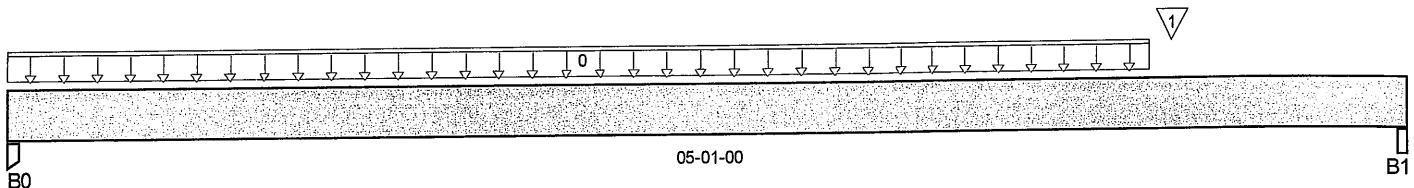
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i2346)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 05-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	123 / 0	68 / 0		
B1, 2-5/8"	406 / 0	213 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-02-00	22	8			n/a
1	B5(i2405)	Conc. Pt. (lbs)	L	04-02-14	04-02-14	434	221			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	598 ft-lbs	12,704 ft-lbs	4.7%	1	04-02-14
End Shear	673 lbs	5,785 lbs	11.6%	1	04-00-14
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-10-08
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-10-08
Max Defl.	0.005"	n/a	n/a	4	02-10-08
Span / Depth	5.7	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	5-1/4" x 1-3/4"	269 lbs	3.6%	2.4%	Unspecified
B1 Beam	2-5/8" x 1-3/4"	875 lbs	35.7%	15.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

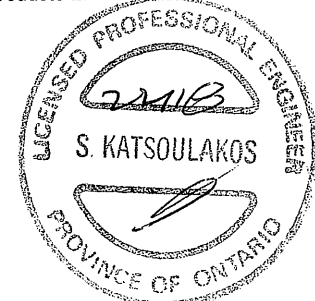
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i2405)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

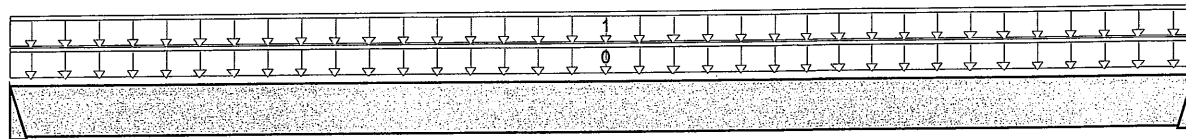
Description: Designs\Flush Beams\Basement\Flush Beams\B5(i2405)

Specifier:

Designer: CZ

Company:

Misc:



B0

03-04-04

B1

Total Horizontal Product Length = 03-04-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	433 / 0	221 / 0		
B1	433 / 0	221 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-04-04	240	120			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-04-04	18	7			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	683 ft-lbs	12,704 ft-lbs	5.4%	1	01-08-05
End Shear	425 lbs	5,785 lbs	7.4%	1	00-11-08
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	01-08-05
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	01-08-05
Max Defl.	0.003"	n/a	n/a	4	01-08-05
Span / Depth	4	n/a	n/a		00-00-00

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	926 lbs	n/a	21.7%	HU S1.81/10
B1 Hanger	2" x 1-3/4"	926 lbs	n/a	21.7%	HU S1.81/10

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



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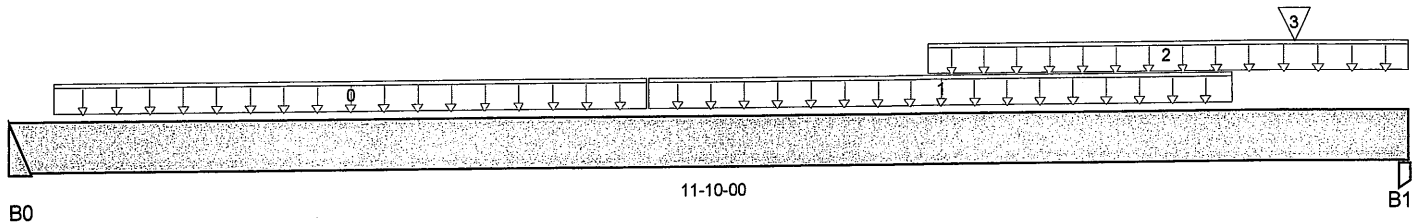
DWG NO. TAM 9733-18
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 5033
Job Name:
Address:
City, Province, Postal Code: BRADFORD,
Customer:
Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl
Description: Designs\Flush Beams\Basement\Flush Beams\B6L(i2420)
Specifier:
Designer: CZ
Company:
Misc:



Total Horizontal Product Length = 11-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	653 / 0	294 / 0		
B1, 3-1/2"	1,372 / 0	646 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-08	05-04-08	86	32			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	05-04-08	10-04-08	102	38			n/a
2	User Load	Unf. Lin. (lb/ft)	L	07-09-02	11-10-00	240	120			n/a
3	J5(i2408)	Conc. Pt. (lbs)	L	10-10-08	10-10-08	106	40			n/a

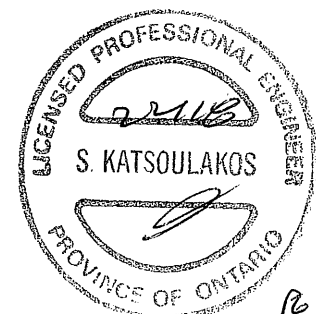
Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,427 ft-lbs	12,704 ft-lbs	42.7%	1	07-10-08
End Shear	2,273 lbs	5,785 lbs	39.3%	1	10-09-00
Total Load Defl.	L/388 (0.356")	0.575"	61.9%	4	06-01-08
Live Load Defl.	L/564 (0.245")	0.383"	63.9%	5	06-01-08
Max Defl.	0.356"	1"	35.6%	4	06-01-08
Span / Depth	14.5	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,347 lbs	n/a	31.6%	HUS1.81/10
B1 Post	3-1/2" x 1-3/4"	2,865 lbs	57.6%	38.3%	Unspecified

Notes





Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6L(i2420)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B6L(i24

Specifier:

Designer: CZ

Company:

Misc:

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods.

Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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DWG NO. TAM 9734-18
STRUCTURAL
COMPONENT ONLY



Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B7L(i2309)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

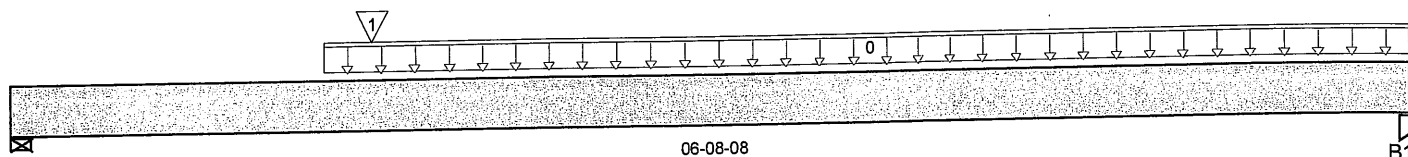
Description: Designs\Flush Beams\Basement\Flush Beams\B7L(i2309)

Specifier:

Designer: CZ

Company:

Misc:



06-08-08

B1

Total Horizontal Product Length = 06-08-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	70 / 0	68 / 0		
B1, 3-1/2"	72 / 0	50 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-06-00	06-08-08	20	7			n/a
1	E3(i885)	Conc. Pt. (lbs)	L	01-08-12	01-08-12	37	46			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	278 ft-lbs	12,704 ft-lbs	2.2%	1	03-00-01
End Shear	182 lbs	5,785 lbs	3.1%	1	01-03-00
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	03-04-08
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	03-04-08
Max Defl.	0.005"	n/a	n/a	4	03-04-08
Span / Depth	7.7	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 1-3/4"	189 lbs	1.4%	1.6%	Unspecified
B1 Post	3-1/2" x 1-3/4"	169 lbs	3.4%	2.3%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume unbraced length of Top: 01-00-08, Bottom: 01-00-08.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B8(i2336)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

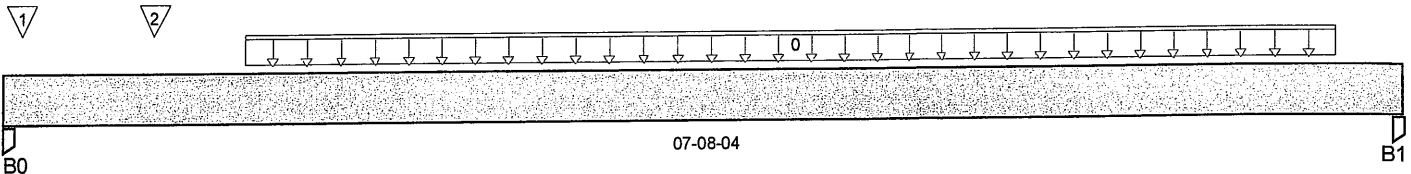
Description: Designs\Flush Beams\Basement\Flush Beams\B8(i2336)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 07-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	403 / 0	171 / 0		
B1, 1-3/4"	352 / 0	151 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-00	07-04-00	103	39			n/a
1	J5(i2143)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	43	16			n/a
2	J5(i2138)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	94	35			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,438 ft-lbs	12,704 ft-lbs	11.3%	1	03-10-00
End Shear	689 lbs	5,785 lbs	11.9%	1	06-09-00
Total Load Defl.	L/999 (0.039")	n/a	n/a	4	03-11-08
Live Load Defl.	L/999 (0.027")	n/a	n/a	5	03-11-08
Max Defl.	0.039"	n/a	n/a	4	03-11-08
Span / Depth	9.3	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	819 lbs	16.5%	11%	Unspecified
B1 Post	1-3/4" x 1-3/4"	716 lbs	28.8%	19.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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DWG NO. TAM 9736-8
STRUCTURAL
COMPONENT ONLY

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Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B9(i2326)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

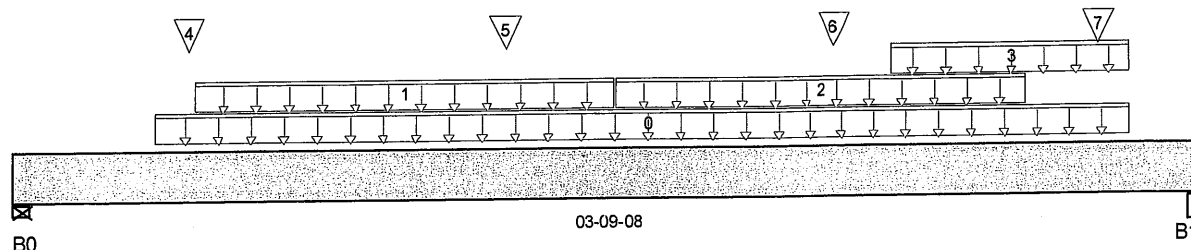
Description: Designs\Flush Beams\Basement\Flush Beams\B9(i2326)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,191 / 0	615 / 0		
B1, 2-5/8"	1,170 / 0	581 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	15(i932)	Unf. Lin. (lb/ft)	L	00-05-08	03-07-00		81			n/a
1	15(i932)	Unf. Lin. (lb/ft)	L	00-07-00	01-11-00	355	133			n/a
2	15(i932)	Unf. Lin. (lb/ft)	L	01-11-00	03-03-00	301	112			n/a
3	15(i932)	Unf. Lin. (lb/ft)	L	02-09-12	03-07-00	284	105			n/a
4	-	Conc. Pt. (lbs)	L	00-06-12	00-06-12	321	149			n/a
5	-	Conc. Pt. (lbs)	L	01-06-14	01-06-14	371	139			n/a
6	-	Conc. Pt. (lbs)	L	02-07-08	02-07-08	369	138			n/a
7	J2(i1676)	Conc. Pt. (lbs)	L	03-05-12	03-05-12	186	69			n/a

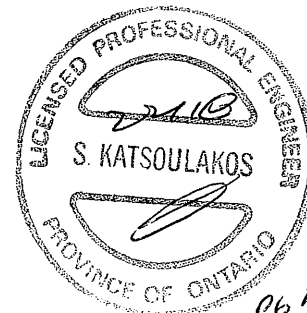
Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,939 ft-lbs	25,408 ft-lbs	7.6%	1	01-11-08
End Shear	2,051 lbs	11,571 lbs	17.7%	1	02-09-06
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-00-00
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-00-00
Max Defl.	0.005"	n/a	n/a	4	02-00-00
Span / Depth	4.1	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	2,554 lbs	24.8%	10.9%	Unspecified
B1 Beam	2-5/8" x 3-1/2"	2,481 lbs	50.6%	22.1%	Unspecified

Notes





Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B9(i2326)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:37

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B9(i2326)

Specifier:

Designer: CZ

Company:

Misc:

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

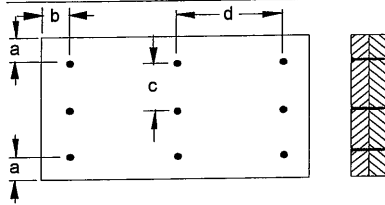
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012**Disclosure**

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Connection Diagram

a minimum = 2" c = 2-3/4"
b minimum = 3" d = 4"

Calculated Side Load = 585.8 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

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DWG NO. TAM 9730-18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B10(i2339)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:36

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

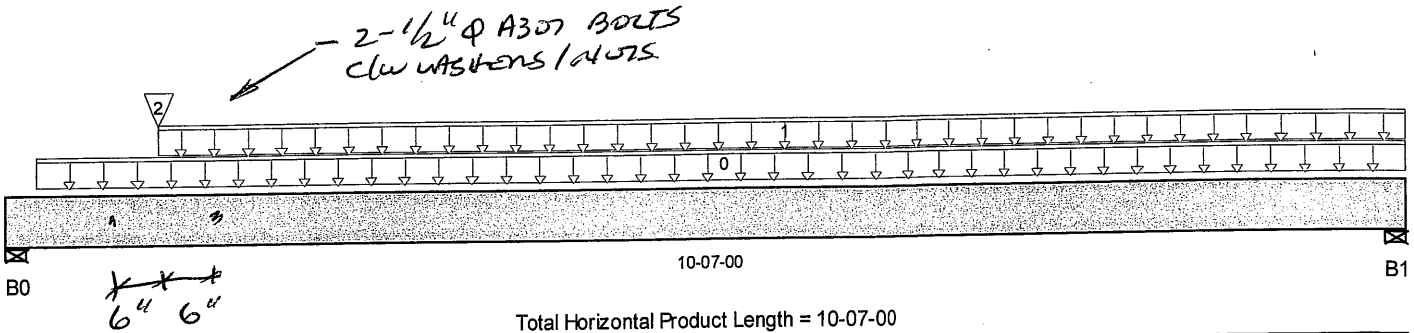
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i2339)

Specifier:

Designer: CZ

Company:

Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,775 / 0	959 / 0		
B1, 5-1/2"	277 / 0	175 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	10-07-00	20	7			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-01-12	10-07-00	7	3			n/a
2	B17(i2421)	Conc. Pt. (lbs)	L	01-01-12	01-01-12	1,777	929			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,872 ft-lbs	25,408 ft-lbs	11.3%	1	01-01-12
End Shear	3,300 lbs	11,571 lbs	28.5%	1	01-03-00
Total Load Defl.	L/999 (0.062")	n/a	n/a	4	04-09-07
Live Load Defl.	L/999 (0.039")	n/a	n/a	5	04-09-07
Max Defl.	0.062"	n/a	n/a	4	04-09-07
Span / Depth	12.4	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	5-1/2" x 3-1/2"	3,861 lbs	37.6%	16.4%	Unspecified
B1	5-1/2" x 3-1/2"	635 lbs	6.2%	2.7%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012





BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i2339)

Specifier:

Designer: CZ

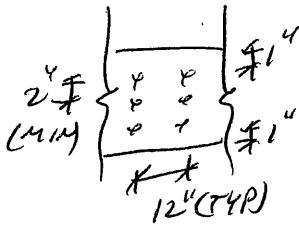
Company:

Misc:

Connection Diagram

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

*OK with
1st floor
+
BOLTS*



PROVIDE 3 ROWS OF 3-1/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 1" LUMBER EDGE / END DISTANCE. DO NOT USE AIR NAILS.

+
BOLTS

Disclosure

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11(i2341)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:35

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

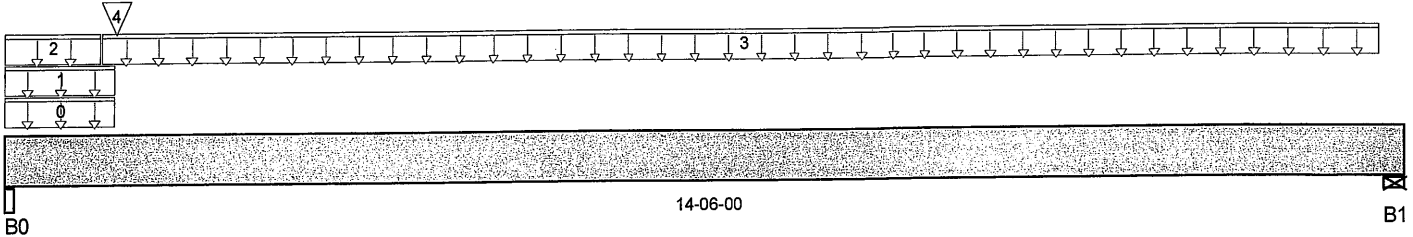
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2341)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 14-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	960 / 0	910 / 0		
B1, 5-1/2"	229 / 0	178 / 0		

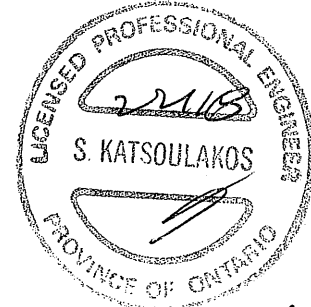
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	01-01-12	66	160		198	n/a
1	LOWROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-01-12	11	10		33	n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	17				n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	14-02-15	27	10			n/a
4	B12(i2334)	Conc. Pt. (lbs)	L	01-01-12	01-01-12	731	615		712	n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,383 ft-lbs	25,408 ft-lbs	9.4%	1	05-06-10
End Shear	2,208 lbs	11,571 lbs	19.1%	1	01-02-12
Total Load Defl.	L/999 (0.119")	n/a	n/a	4	06-10-06
Live Load Defl.	L/999 (0.067")	n/a	n/a	5	06-10-06
Max Defl.	0.119"	n/a	n/a	4	06-10-06
Span / Depth	17.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 3-1/2"	2,577 lbs	26.3%	11.5%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	567 lbs	5.5%	2.4%	Unspecified

Notes



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2341

Specifier:

Designer: CZ

Company:

Misc:

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

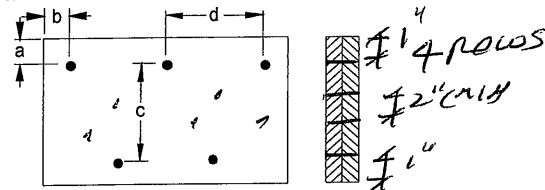
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

Connection Diagram



a minimum = 2" c = 3-1/2" //

b minimum = 3" d = 4"

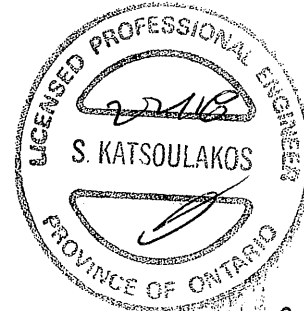
Calculated Side Load = 128.6 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: Nails

3-1/2" ARDOX SPIRAL

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DWG NO. TAM 9739-18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B12(i2334)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:36

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

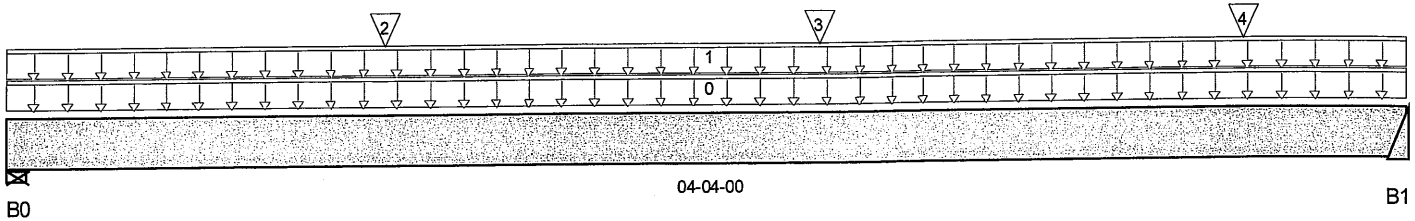
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i2334)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0; 5-1/2"	735 / 0	678 / 0		
B1	750 / 0	633 / 0		

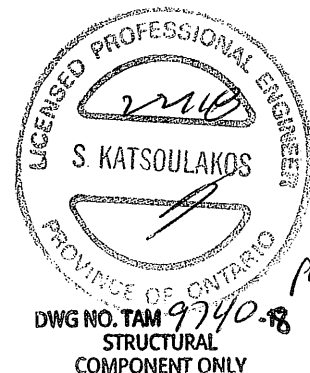
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	LOWROOF	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	88	80		264	n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	33	130		99	n/a
2	J3(i1991)	Conc. Pt. (lbs)	L	01-02-00	01-02-00	331	124			n/a
3	J3(i2062)	Conc. Pt. (lbs)	L	02-06-00	02-06-00	361	135			n/a
4	J3(i2034)	Conc. Pt. (lbs)	L	03-10-00	03-10-00	268	100			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,844 ft-lbs	25,408 ft-lbs	7.3%	1	02-06-00
End Shear	1,311 lbs	11,571 lbs	11.3%	1	01-03-00
Total Load Defl.	L/999 (0.007")	n/a	n/a	4	02-03-10
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-03-10
Max Defl.	0.007"	n/a	n/a	4	02-03-10
Span / Depth	4.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	1,950 lbs	19%	8.3%	Unspecified
B1 Hanger	2" x 3-1/2"	1,915 lbs	n/a	22.4%	HGUS410

Notes



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i2334)

Specifier:

Designer: CZ

Company:

Misc:

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

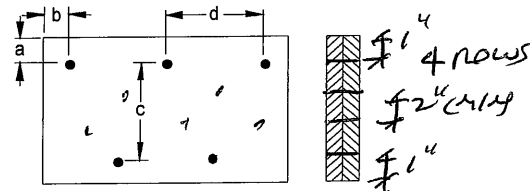
Disclosure

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Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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Connection Diagram



a minimum = 1" c = 1-1/2"
b minimum = 3" d = 4"

Calculated Side Load = 435.9 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM 9740
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13DR(i2344)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:36

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

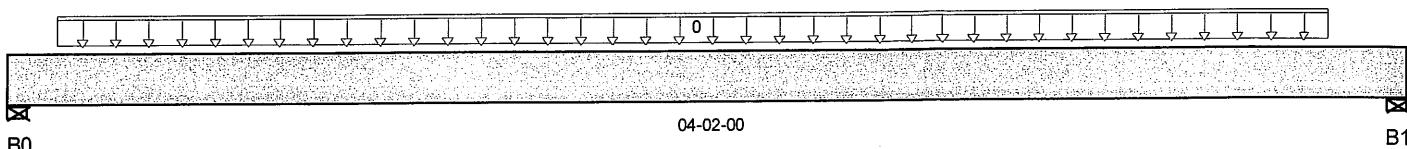
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B131

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	603 / 0	246 / 0		
B1, 4"	576 / 0	236 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-12	03-11-04	305	114			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,087 ft-lbs	25,408 ft-lbs	4.3%	1	02-00-08
End Shear	822 lbs	11,571 lbs	7.1%	1	03-00-08
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	02-01-02
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	02-01-02
Max Defl.	0.003"	n/a	n/a	4	02-01-02
Span / Depth	4.6	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	1,212 lbs	10.7%	7.1%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	1,160 lbs	10.2%	6.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume unbraced length of Top: 00-02-06, Bottom: 00-02-06.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



SITE COPY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

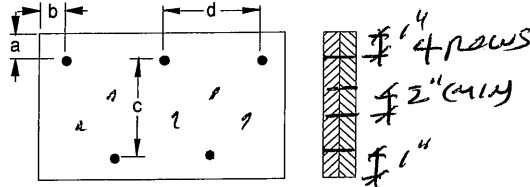
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



a minimum = 1" c = 1-1/2"
b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

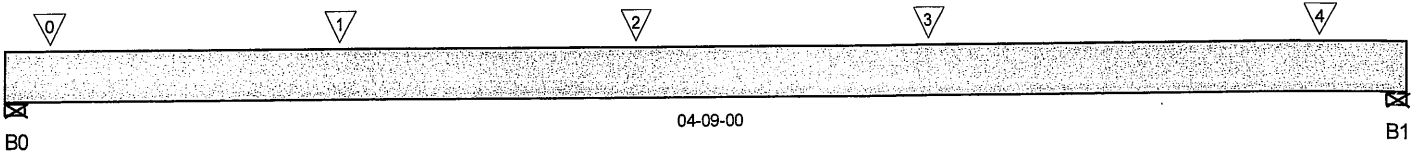
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B14I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	713 / 0	291 / 0		
B1, 4"	791 / 0	319 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J3(i1984)	Conc. Pt. (lbs)	L	00-01-13	00-01-13	195	73			n/a
1	J2(i2185)	Conc. Pt. (lbs)	L	01-01-08	01-01-08	274	103			n/a
2	J2(i2183)	Conc. Pt. (lbs)	L	02-01-08	02-01-08	288	108			n/a
3	J2(i2172)	Conc. Pt. (lbs)	L	03-01-08	03-01-08	336	126			n/a
4	J2(i2028)	Conc. Pt. (lbs)	L	04-05-08	04-05-08	384	144			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,229 ft-lbs	25,408 ft-lbs	4.8%	1	02-01-08
End Shear	948 lbs	11,571 lbs	8.2%	1	01-03-00
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-05-02
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-05-02
Max Defl.	0.005"	n/a	n/a	4	02-05-02
Span / Depth	5.2	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	1,432 lbs	9.2%	6.1%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	1,584 lbs	13.9%	9.3%	Unspecified

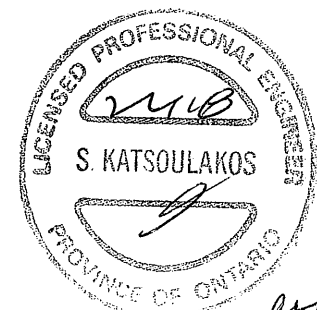
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume unbraced length of Top: 00-01-15, Bottom: 00-01-15.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

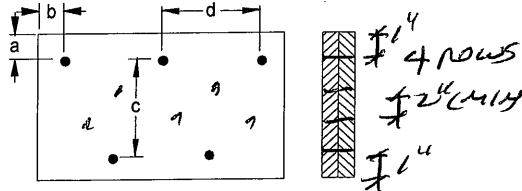
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



a minimum = 1" c = 1-1/2"
b minimum = 3" d = 4"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

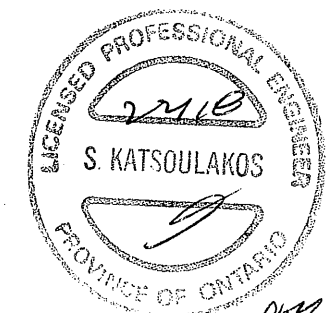
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B15DR(i2322)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:36

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

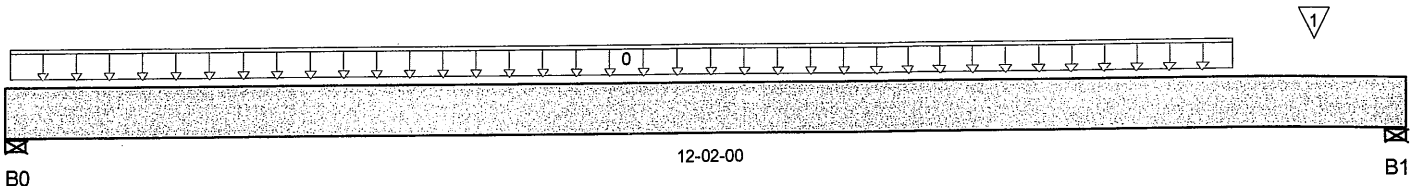
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B15I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	3,453 / 0	1,382 / 0		
B1, 4"	3,394 / 0	1,360 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-08	10-08-08	572	214			n/a
1	-	Conc. Pt. (lbs)	L	11-04-08	11-04-08	749	281			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	19,569 ft-lbs	39,636 ft-lbs	49.4%	1	06-00-08
End Shear	6,150 lbs	17,356 lbs	35.4%	1	11-00-08
Total Load Defl.	L/317 (0.44")	0.581"	75.8%	4	06-00-08
Live Load Defl.	L/443 (0.315")	0.388"	81.2%	5	06-00-08
Max Defl.	0.44"	1"	44%	4	06-00-08
Span / Depth	14.7	n/a	n/a		00-00-00

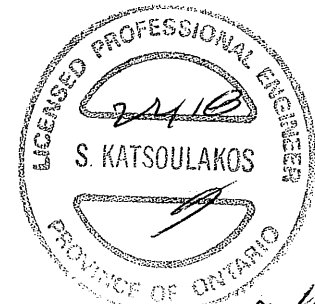
Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	Wall/Plate 4" x 5-1/4"	6,907 lbs	40.5%	27%	Unspecified
B1	Wall/Plate 4" x 5-1/4"	6,791 lbs	39.8%	26.5%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume unbraced length of Top: 00-04-14, Bottom: 00-04-14.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



SITE COPY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B15DR(i2322)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:36

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

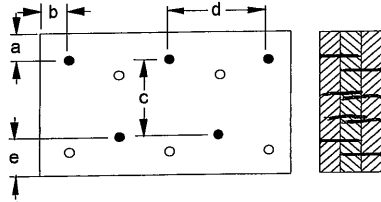
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



a minimum = 1"
b minimum = 3"
c = 6 1/2"
d = 4"
e minimum = 2"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nailing schedule applies to both sides of the member.

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

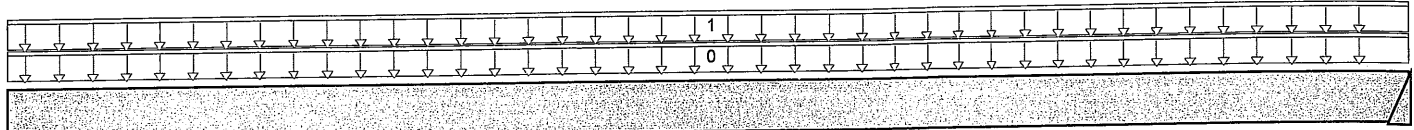
Description: Designs\Flush Beams\1st Floor\Flush Beams\B16(i2342)

Specifier:

Designer: CZ

Company:

Misc:



☒ 12-06-08
 B0 B1

Total Horizontal Product Length = 12-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	96 / 0	483 / 0		
B1	92 / 0	461 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	0	Unf. Lin. (lb/ft)	L	00-00-00	12-06-08		60			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-06-08	15	6			n/a

Controls Summary

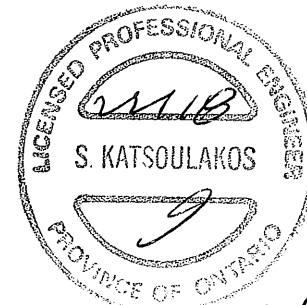
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,910 ft-lbs	16,515 ft-lbs	11.6%	0	06-05-00
End Shear	544 lbs	7,521 lbs	7.2%	0	01-03-00
Total Load Defl.	L/999 (0.085")	n/a	n/a	4	06-05-00
Live Load Defl.	L/999 (0.014")	n/a	n/a	5	06-05-00
Max Defl.	0.085"	n/a	n/a	4	06-05-00
Span / Depth	15.2	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	676 lbs	10.1%	4.4%	Unspecified
B1 Hanger	2" x 3-1/2"	714 lbs	n/a	11.6%	HGUS410

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B16(i2342)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:36

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B16(i2342

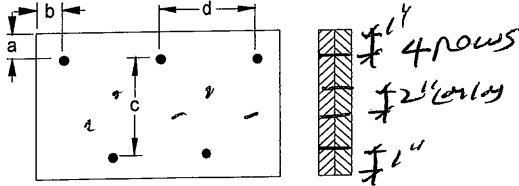
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



a minimum = 1" c = 1 1/2"
b minimum = 3" d = 12"

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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per

DWG NO. TAM 9744-18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B17(i2421)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 10:51:36

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl

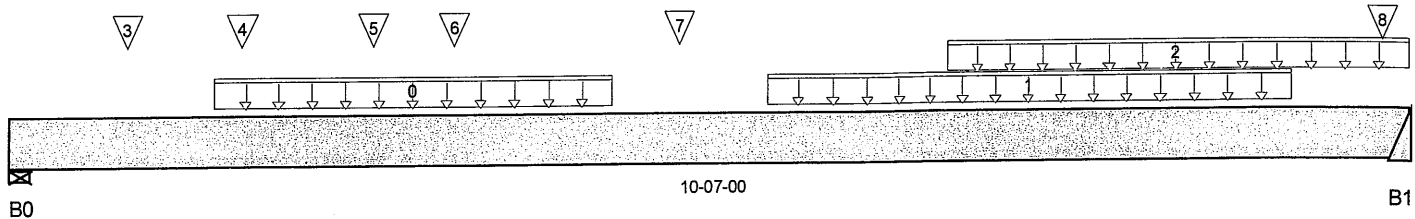
Description: Designs\Flush Beams\1st Floor\Flush Beams\B17(i2421)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 10-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,653 / 0	976 / 0		
B1	1,781 / 0	926 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-08	04-06-08	185	70			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	05-08-08	09-08-08	190	71			n/a
2	0	Unf. Lin. (lb/ft)	L	07-01-00	10-07-00	240	120			n/a
3	-	Conc. Pt. (lbs)	L	00-10-08	00-10-08	364	136			n/a
4	J4(i2286)	Conc. Pt. (lbs)	L	01-09-00	01-09-00	219	82			n/a
5	J3(i2280)	Conc. Pt. (lbs)	L	02-09-00	02-09-00	190	56			n/a
6	B16(i2342)	Conc. Pt. (lbs)	L	03-04-04	03-04-04	91	457			n/a
7	J5(i2108)	Conc. Pt. (lbs)	L	05-00-08	05-00-08	222	83			n/a
8	J5(i2087)	Conc. Pt. (lbs)	L	10-04-08	10-04-08	159	60			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,198 ft-lbs	25,408 ft-lbs	32.3%	1	05-00-08
End Shear	3,325 lbs	11,571 lbs	28.7%	1	01-03-00
Total Load Defl.	L/548 (0.221")	0.504"	43.8%	4	05-04-08
Live Load Defl.	L/879 (0.138")	0.336"	40.9%	5	05-04-08
Max Defl.	0.221"	1"	22.1%	4	05-04-08
Span / Depth	12.7	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	3,699 lbs	36%	15.8%	Unspecified
B1 Hanger	2" x 3-1/2"	3,829 lbs	n/a	44.8%	HGUS410

Notes



12/12

SITE COPY

BC CALC® Design Report



Build 5033
Job Name:
Address:
City, Province, Postal Code: BRADFORD,
Customer:
Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B17(i2421)
Specifier:
Designer: CZ
Company:
Msc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum total load deflection criteria.
Design meets User specified (0.75") Maximum live load deflection criteria.
Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

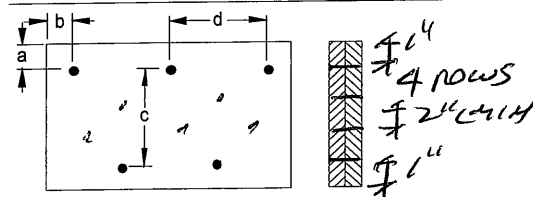
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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Connection Diagram



a minimum = 1" c = 3-1/2"
b minimum = 3" d = 4"

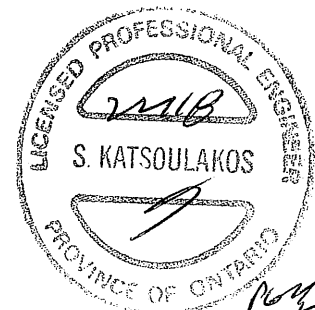
Calculated Side Load = 344.7 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 16d Sinker Nails

3-1/2" ARDOX SPIRAL

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DWG NO. TAM 9745-18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B19A()

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 11:00:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C-ELB,C.mmdl

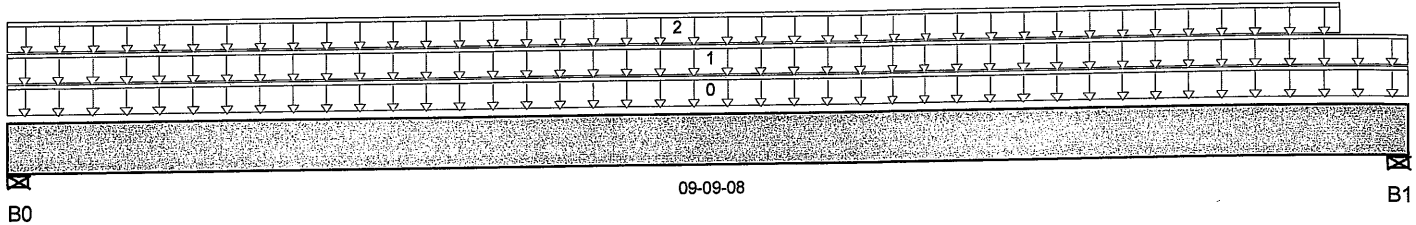
Description: Designs\Flush Beams\1st Floor\Flush Beams\B19A()

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 09-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	636 / 0	1,063 / 0	1,616 / 0	
B1, 5-1/2"	634 / 0	1,062 / 0	1,616 / 0	

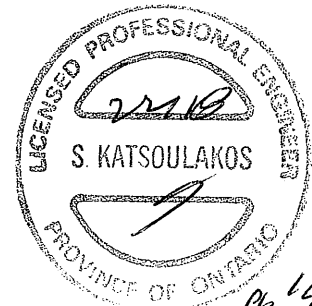
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	LOWROOF	Unf. Lin. (lb/ft)	L	00-00-00	09-09-08	77	70	231		n/a
1	0	Unf. Lin. (lb/ft)	L	00-00-00	09-09-08	33	130	99		n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	20	8			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,418 ft-lbs	25,408 ft-lbs	33.1%	13	04-10-12
End Shear	3,033 lbs	11,571 lbs	26.2%	13	08-06-08
Total Load Defl.	L/598 (0.181")	0.45"	40.2%	45	04-10-12
Live Load Defl.	L/999 (0.117")	n/a	n/a	61	04-10-12
Max Defl.	0.181"	1"	18.1%	45	04-10-12
Span / Depth	11.4	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	4,070 lbs	39.6%	17.3%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	4,068 lbs	39.6%	17.3%	Unspecified

Notes





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B19A()

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 15, 2017 11:00:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C-ELB.C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B19A()

Specifier:

Designer: CZ

Company:

Misc:

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

CONFORMS TO OBC 2012

Unbalanced snow loads determined from building geometry were used in selected product's verification.

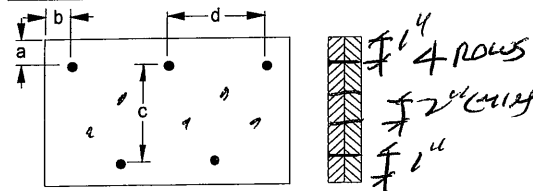
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Disclosure

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Connection Diagram



a minimum = 1" c = 3-1/2"
b minimum = 3" d = 6"

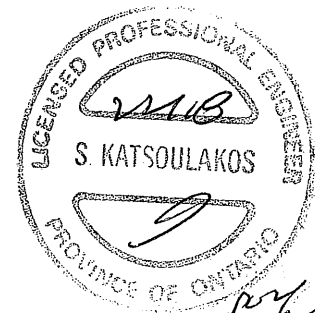
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d Sinkers Nails

3-1/2" ARDOX SPIRAL

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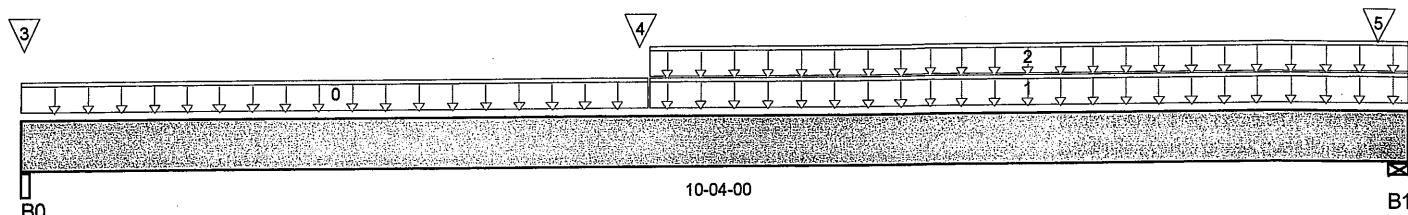


BC CALC® Design Report



Build 5033
Job Name:
Address:
City, Province, Postal Code: BRADFORD,
Customer:
Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C-ELB,C.mmdl
Description: Designs\Flush Beams\Basement\Flush Beams\B20(i3242)
Specifier:
Designer: CZ
Company:
Misc:



Total Horizontal Product Length = 10-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-5/8"	187 / 0	267 / 0		
B1, 6"	483 / 0	631 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-08-00	20	7			n/a
1	User Load	Unf. Lin. (lb/ft)	L	04-08-00	10-04-00		60			n/a
2	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	04-08-00	10-04-00	11	4			n/a
3	13(i917)	Conc. Pt. (lbs)	L	00-00-04	00-00-04		15			n/a
4	B22(i3240)	Conc. Pt. (lbs)	L	04-07-02	04-07-02	182	203			n/a
5	5(i904)	Conc. Pt. (lbs)	L	10-01-04	10-01-04	333	232			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,161 ft-lbs	12,704 ft-lbs	17%	1	04-07-02
End Shear	434 lbs	3,761 lbs	11.5%	0	09-00-08
Total Load Defl.	L/999 (0.098")	n/a	n/a	4	05-00-02
Live Load Defl.	L/999 (0.036")	n/a	n/a	5	04-10-08
Max Defl.	0.098"	n/a	n/a	4	05-00-02
Span / Depth	12.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	2-5/8" x 1-3/4"	614 lbs	25%	11%	Unspecified
B1 Wall/Plate	6" x 1-3/4"	1,513 lbs	27%	11.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012





Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B20(i3242)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 19, 2017 16:20:02

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C-ELB,C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B20(i32

Specifier:

Designer: CZ

Company:

Misc:

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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DWG NO. TAM 9147-18
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C-ELB,C.mmdl

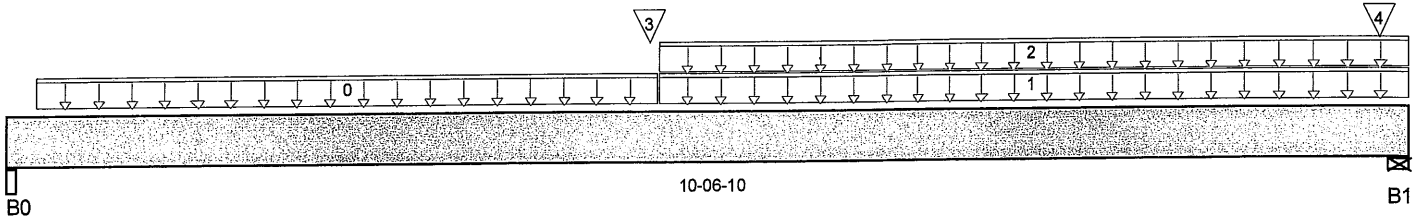
Description: Designs\Flush Beams\Basement\Flush Beams\B21(i3241

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 10-06-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	172 / 0	249 / 0		
B1, 5-1/2"	1,185 / 0	1,128 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	04-10-10	20	8			n/a
1	User Load	Unf. Lin. (lb/ft)	L	04-10-10	10-06-10		60			n/a
2	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	04-10-10	10-06-10	6				n/a
3	B22(i3240)	Conc. Pt. (lbs)	L	04-09-12	04-09-12	167	198			n/a
4	4(i901)	Conc. Pt. (lbs)	L	10-03-14	10-03-14	1,064	741			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,359 ft-lbs	8,258 ft-lbs	16.5%	0	04-09-12
End Shear	425 lbs	3,761 lbs	11.3%	0	09-03-10
Total Load Defl.	L/999 (0.094")	n/a	n/a	4	05-02-12
Live Load Defl.	L/999 (0.032")	n/a	n/a	5	05-01-02
Max Defl.	0.094"	n/a	n/a	4	05-02-12
Span / Depth	12.4	n/a	n/a		00-00-00

Disclosure

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Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 1-3/4"	569 lbs	11.6%	5.1%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	3,188 lbs	62%	27.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

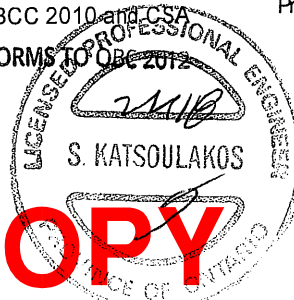
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO QBC 2012



BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-7C BAROSSA 7C-ELB.C.mmdl

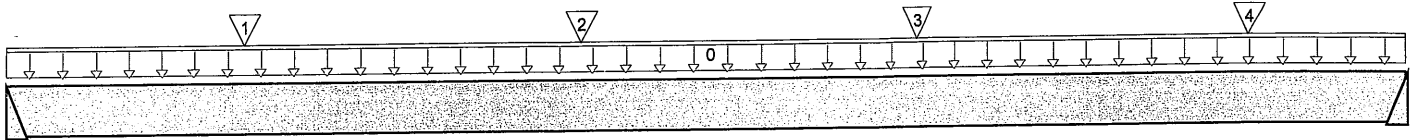
Description: Designs\Flush Beams\Basement\Flush Beams\B22(i3238

Specifier:

Designer: CZ

Company:

Misc:



04-02-00

B1

Total Horizontal Product Length = 04-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	167 / 0	198 / 0		
B1	182 / 0	204 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	04-02-00		60			n/a
1	J4(i2909)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	83	31			n/a
2	J4(i2731)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	96	36			n/a
3	J4(i2928)	Conc. Pt. (lbs)	L	02-08-08	02-08-08	96	36			n/a
4	J4(i2910)	Conc. Pt. (lbs)	L	03-08-08	03-08-08	74	28			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	517 ft-lbs	12,704 ft-lbs	4.1%	1	01-09-04
End Shear	368 lbs	5,785 lbs	6.4%	1	00-11-08
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	02-01-00
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	02-01-00
Max Defl.	0.004"	n/a	n/a	4	02-01-00
Span / Depth	5	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	497 lbs	n/a	11.6%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	528 lbs	n/a	12.4%	HUS1.81/10

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

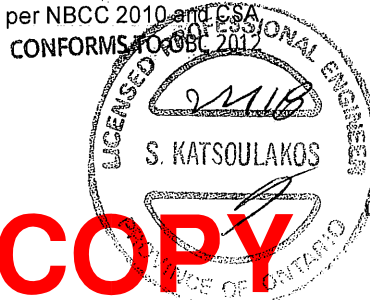
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Disclosure

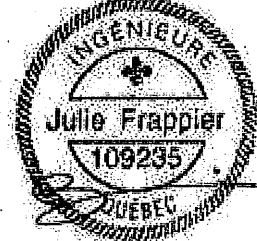
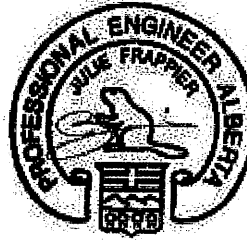
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Maximum Floor Spans

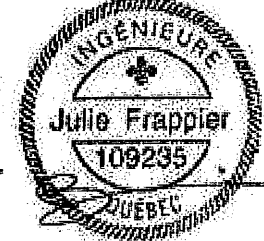
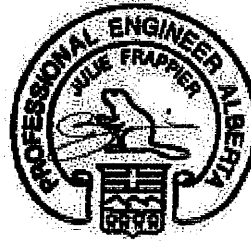
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



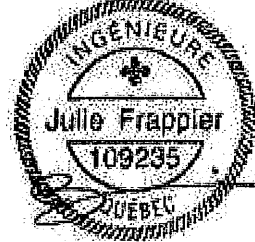
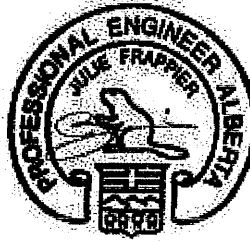
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
14"	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
16"	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
	NI-60	22'-1"	20'-7"	19'-7"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
14"	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
16"	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"
	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

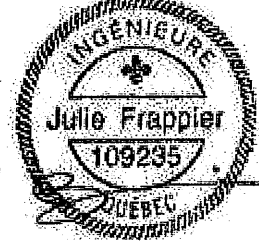
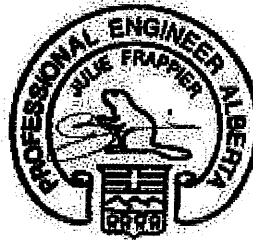
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
11-7/8"	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



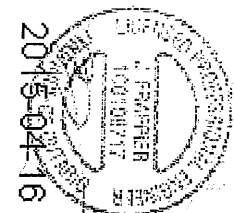
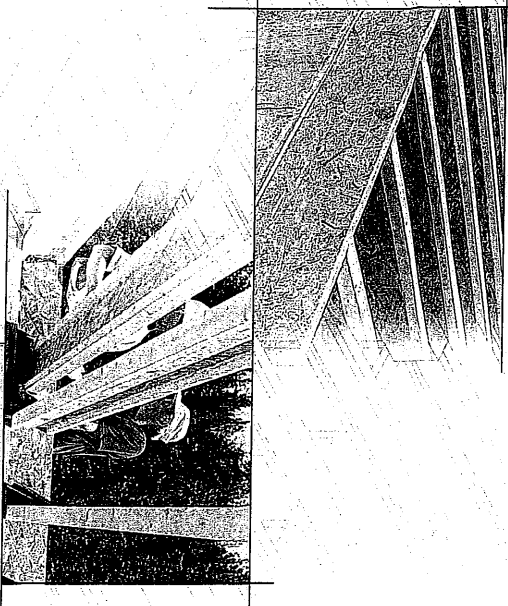
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"
11-7/8"	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	15'-10"
	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"
14"	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"
16"	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"
11-7/8"	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"
	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"
	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
14"	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
16"	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



N-C301 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS

WARNING

I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

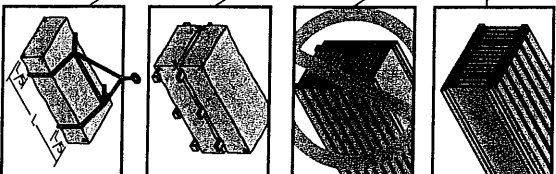
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.



Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



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MAXIMUM FLOOR SPANS

1. Maximum **clear** spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing
12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"
NI-20	NI-40x	15.1'	14.2'	13.9'	12.5'	12.1'	11.7'	11.4'	11.0'
NI-40	NI-80	16.1'	15.2'	14.8'	13.5'	13.1'	12.7'	12.4'	12.0'
NI-60	NI-120	17.3'	16.3'	15.9'	14.5'	14.1'	13.7'	13.4'	13.0'
NI-80	NI-160	18.4'	17.4'	17.0'	15.5'	15.1'	14.7'	14.4'	14.0'
NI-100	NI-200	19.6'	18.6'	18.2'	16.7'	16.3'	15.9'	15.6'	15.2'
NI-120	NI-240	20.8'	19.8'	19.4'	17.9'	17.5'	17.1'	16.8'	16.4'
NI-140	NI-280	22.0'	21.0'	20.6'	19.1'	18.7'	18.3'	18.0'	17.6'
NI-160	NI-320	23.1'	22.1'	21.7'	20.3'	19.9'	19.5'	19.2'	18.8'
NI-180	NI-360	24.3'	23.3'	22.9'	21.5'	21.1'	20.7'	20.4'	20.0'
NI-200	NI-400	25.5'	24.5'	24.1'	22.7'	22.3'	21.9'	21.6'	21.2'
NI-220	NI-440	26.7'	25.7'	25.3'	23.9'	23.5'	23.1'	22.8'	22.4'
NI-240	NI-480	27.9'	26.9'	26.5'	25.1'	24.7'	24.3'	24.0'	23.6'
NI-260	NI-520	29.1'	28.1'	27.7'	26.3'	25.9'	25.5'	25.2'	24.8'
NI-280	NI-560	30.3'	29.3'	28.9'	27.5'	27.1'	26.7'	26.4'	26.0'
NI-300	NI-600	31.5'	30.5'	30.1'	28.7'	28.3'	27.9'	27.6'	27.2'
NI-320	NI-640	32.7'	31.7'	31.3'	29.9'	29.5'	29.1'	28.8'	28.4'
NI-340	NI-680	33.9'	32.9'	32.5'	31.1'	30.7'	30.3'	30.0'	29.6'
NI-360	NI-720	35.1'	34.1'	33.7'	32.3'	31.9'	31.5'	31.2'	30.8'
NI-380	NI-760	36.3'	35.3'	34.9'	33.5'	33.1'	32.7'	32.4'	32.0'
NI-400	NI-800	37.5'	36.5'	36.1'	34.7'	34.3'	33.9'	33.6'	33.2'
NI-420	NI-840	38.7'	37.7'	37.3'	35.9'	35.5'	35.1'	34.8'	34.4'
NI-440	NI-880	39.9'	38.9'	38.5'	37.1'	36.7'	36.3'	36.0'	35.6'
NI-460	NI-920	41.1'	40.1'	39.7'	38.3'	37.9'	37.5'	37.2'	36.8'
NI-480	NI-960	42.3'	41.3'	40.9'	39.5'	39.1'	38.7'	38.4'	38.0'

CGMC EVALUATION REPORT 13032-R

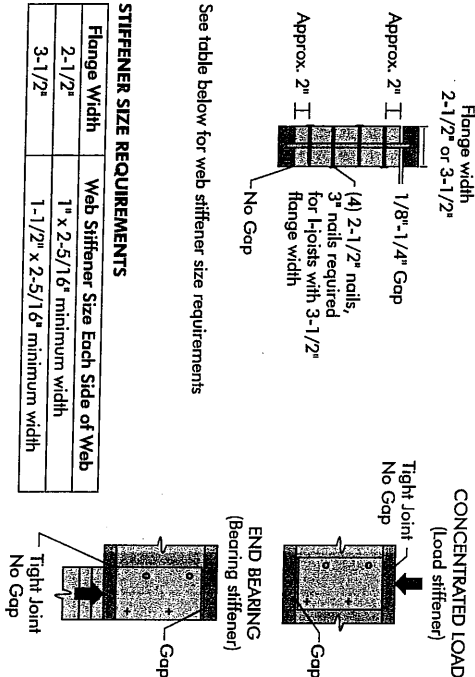
WEB STIFFENERS

RECOMMENDATIONS:

- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A **bearing stiffener** is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A **load stiffener** is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

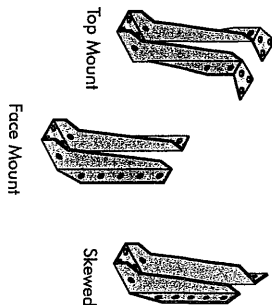
SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



I-JOIST HANGERS

1. Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
2. All nailing must meet the hanger manufacturer's recommendations.
3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.



NORDIC I-JOIST SERIES

S-PF No.2	1950F MSR	2100F MSR	1950F MSR	2100F MSR	2400F MSR	NRG Lumber
NI-20	NI-40x	NI-60	NI-70	NI-80	NI-90	NI-90x
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

Chantiers Chibougamou Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures through the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed, back spruce lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.

2015-04-16

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INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple spans must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include truck lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge **may never** be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

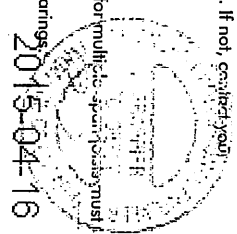
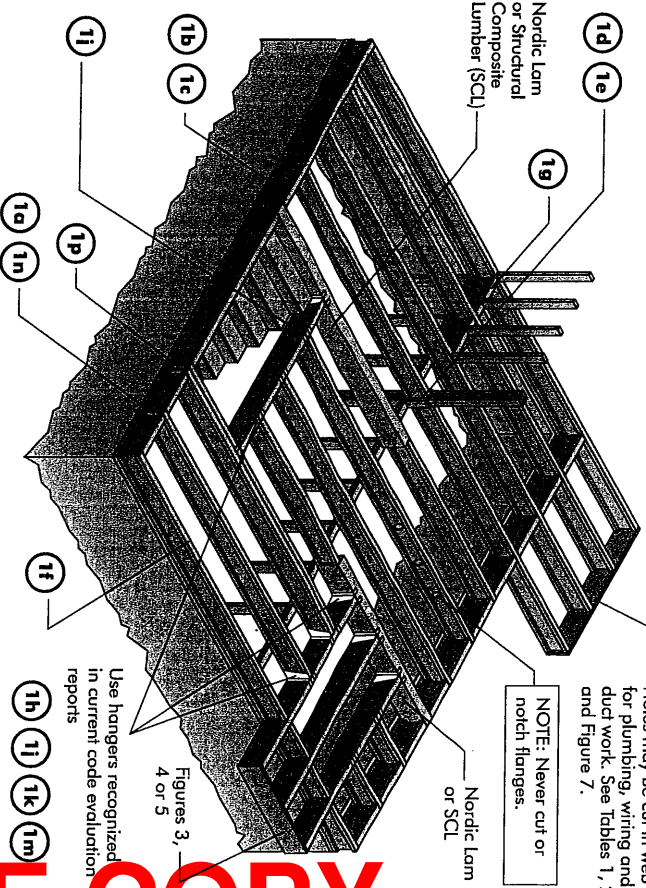


FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.



Figures 3, 4 or 5
Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.

NOTE: Never cut or notch flanges.

Figures 3, 4 or 5

Use hangers recognized in current code evaluation reports

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

1a

NI blocking panel

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

1b

One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c. To avoid splitting flange, start nails of least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate. Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

Blocking Panel or Rim Board Plus	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

1c

Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

NI rim joist per detail 1a

Attach I-joist per detail 1b

Minimum 1-3/4" bearing required

1d

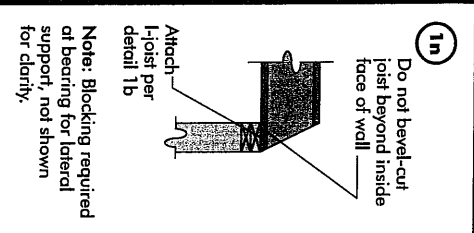
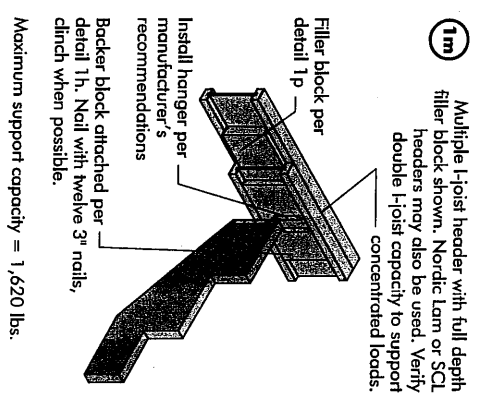
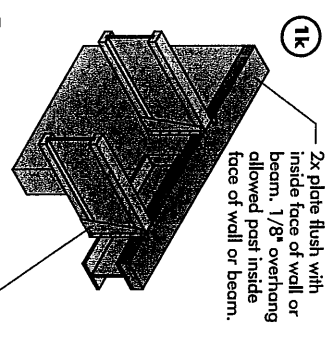
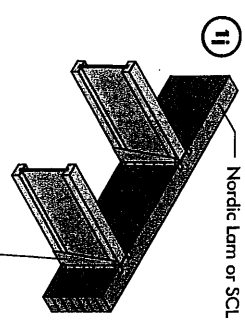
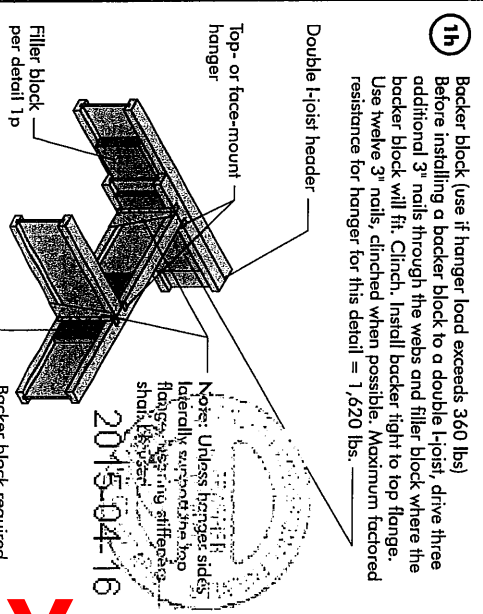
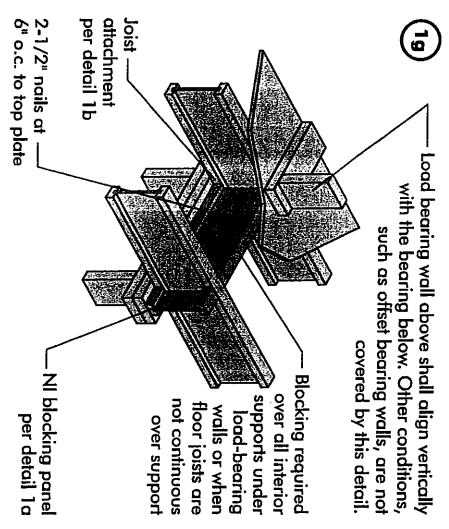
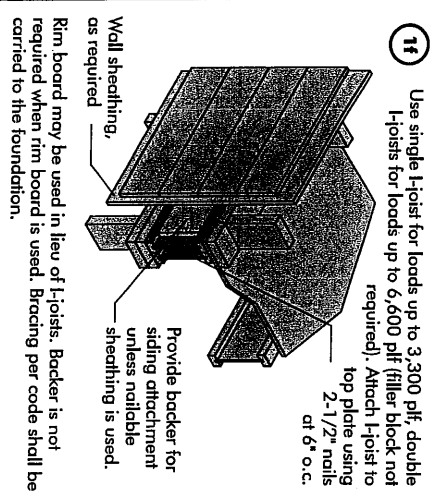
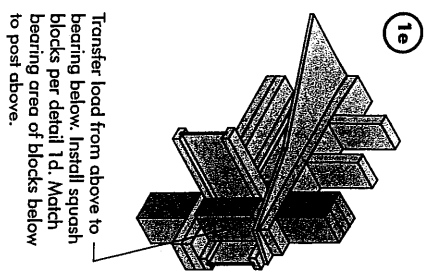
NI or rim board blocking panel per detail 1a

1/16" for squash blocks

Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a, 1b, or 1c

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BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

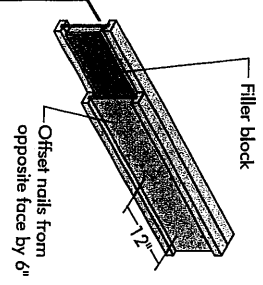
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-Q325 or CAN/CSA-Q437 Standard.
 ** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

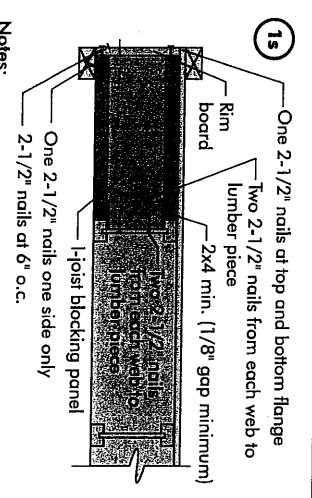
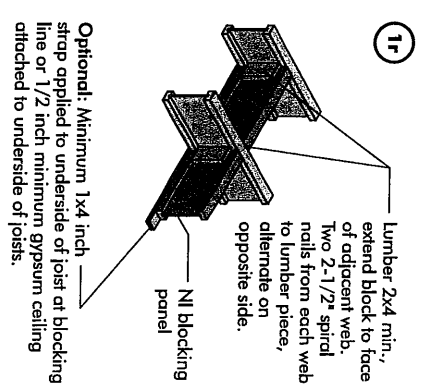
1p



- Notes:**
- Support back of I-joist web during nailing to prevent damage to web/flange connection.
 - Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
 - Filler block is required between joists for full length of span.
 - Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
 - The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

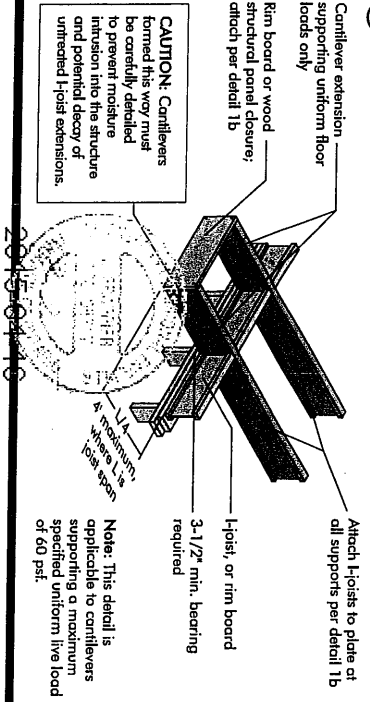
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" x 11-7/8" x 14"	2-1/8" x 6"
3-1/2" x 1-1/2"	11-7/8" x 14"	2-1/8" x 8"
3-1/2" x 2"	11-7/8" x 14"	2-1/8" x 10"
3-1/2" x 2"	11-7/8" x 16"	2-1/8" x 12"
3-1/2" x 2"	11-7/8" x 16"	3" x 6"
3-1/2" x 2"	11-7/8" x 16"	3" x 8"
3-1/2" x 2"	11-7/8" x 16"	3" x 10"
3-1/2" x 2"	11-7/8" x 16"	3" x 12"
3-1/2" x 2"	11-7/8" x 16"	3" x 7"
3-1/2" x 2"	11-7/8" x 16"	3" x 9"
3-1/2" x 2"	11-7/8" x 16"	3" x 11"



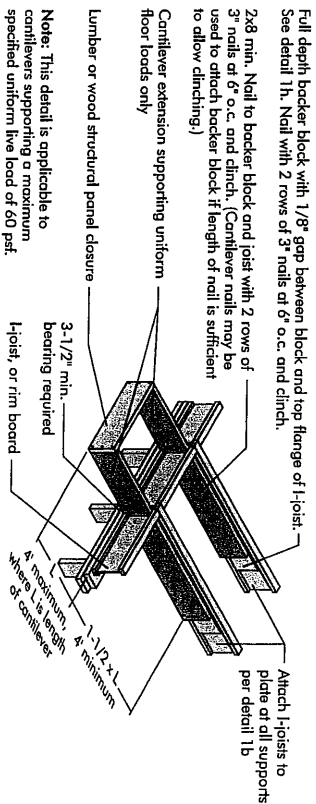
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CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

30 I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

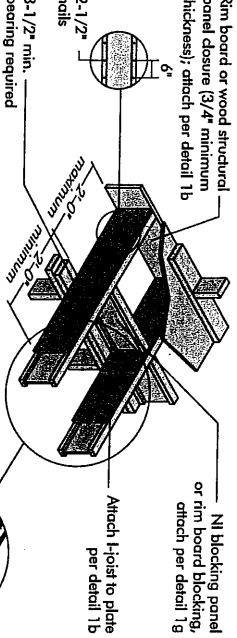


35 LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



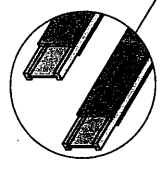
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

40 Method 1 — SHEATHING REINFORCEMENT ONE SIDE



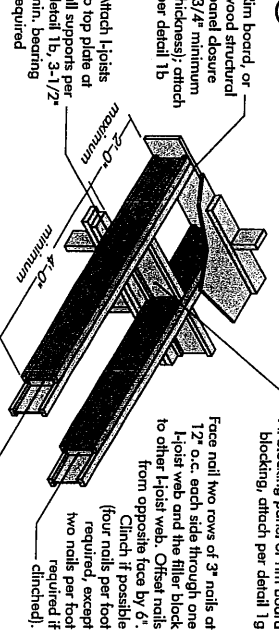
Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 3'.



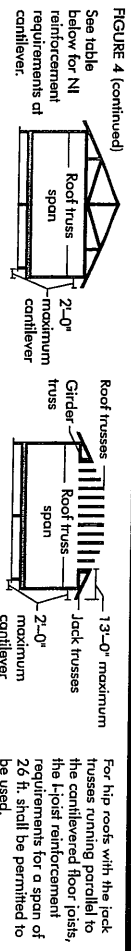
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

45 Alternate Method 2 — DOUBLE I-JOIST



CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)			
		LL = 30 psf, DL = 15 psf JOIST SPACING (in.)	LL = 40 psf, DL = 15 psf JOIST SPACING (in.)	LL = 50 psf, DL = 15 psf JOIST SPACING (in.)	LL = 60 psf, DL = 15 psf JOIST SPACING (in.)
12	12	N	N	N	N
12	16	N	N	N	N
12	19.2	N	N	N	N
12	24	N	N	N	N
16	12	N	N	N	N
16	16	N	N	N	N
16	19.2	N	N	N	N
16	24	N	N	N	N
20	12	N	N	N	N
20	16	N	N	N	N
20	19.2	N	N	N	N
20	24	N	N	N	N
24	12	N	N	N	N
24	16	N	N	N	N
24	19.2	N	N	N	N
24	24	N	N	N	N



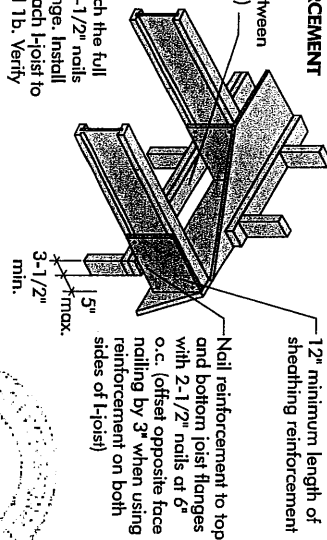
1. N = No reinforcement required.
2. NI = NI reinforced with 3/4" wood structural panel on one side only.
3. NI = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. Table allows joists 12" to 24" o.c. that meet the floor joist requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for faster spacing.
6. For conventional roof construction using a ridge beam, the Roof Truss span column above is equivalent to the distance between the supporting wall and the ridge beam.
7. When the roof is framed using a ridge beam, the Roof Truss span is equivalent to the distance between the supporting walls as if a truss is used.
8. Cantilevered joist supporting girder trusses or roof beams may require additional reinforcing.

BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

5a SHEATHING REINFORCEMENT

Provide full depth blocking between joists over support (not shown)

Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

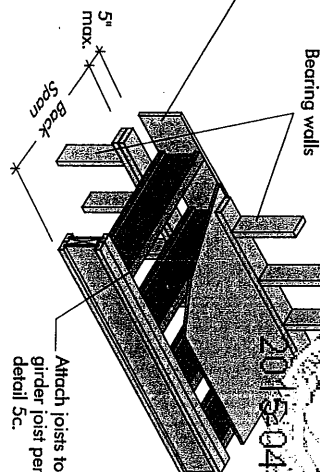


5b SET-BACK DETAIL

Kim board or wood structural panel closure (3/4" minimum thickness), attach per detail 1b.

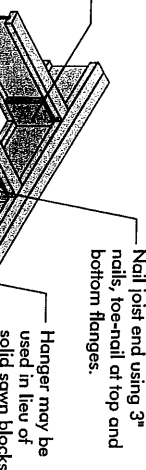
Notes:

- Provide full depth blocking between joists over support (not shown for clarity)
- Attach I-joist to plate at all supports per detail 1b.
- 3-1/2" minimum I-joist bearing required.



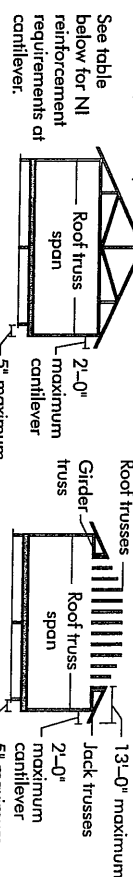
5c SET-BACK CONNECTION

Vertical solid sawn blocks (2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails.



- Notes:**
- Verify girder joist capacity if the back span exceeds the joist spacing.
 - Attach double I-joist per detail 1p, if required.

FIGURE 5 (continued)



For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS				ROOF LOADING (UNFACTORED)							
	LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)
12	12	12	12	12	12	12	12	12	12	12	12	12
16	16	16	16	16	16	16	16	16	16	16	16	16
19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
24	24	24	24	24	24	24	24	24	24	24	24	24
28	28	28	28	28	28	28	28	28	28	28	28	28
32	32	32	32	32	32	32	32	32	32	32	32	32
36	36	36	36	36	36	36	36	36	36	36	36	36
40	40	40	40	40	40	40	40	40	40	40	40	40
42	42	42	42	42	42	42	42	42	42	42	42	42

1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. X = Try a deeper joist or closer spacing.
4. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.

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INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joint flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Common Wire or Spiral Nails	Nail Size and Type	Staples	Maximum Spacing of Fasteners	Maximum Spacing of Fasteners
16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

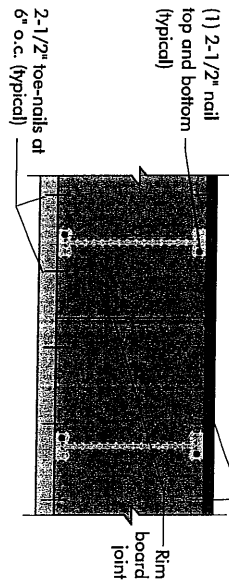
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim board Joint Between Floor Joists

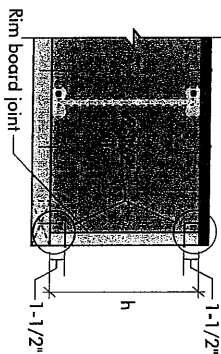
2-1/2" nails at 6" o.c. (typical)

(1) 2-1/2" nail top and bottom (typical)

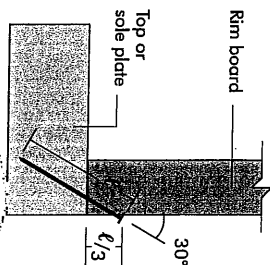


Rim board Joint at Corner

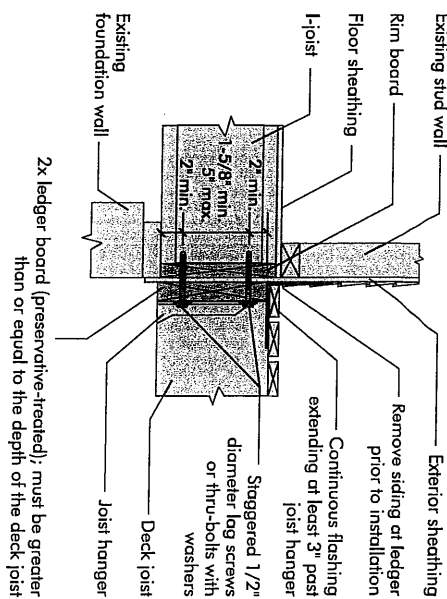
1-1/2" h



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



2015-04-16

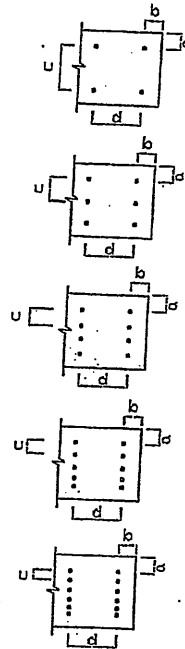
PRODUCT WARRANTY

Chamberlain guarantees that its products are manufactured in accordance with its specifications. No other products are from manufacturing defects in material and workmanship.

Furthermore, Chamberlain warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

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LVL HEADER AND CONVENTIONAL LUMBER NAILING DETAILS		
DETAIL NUMBER	NUMBER OF ROWS	SPACING (INCHES o/c) "d"
A	2	12
B	2	8
C	2	6
D	2	4
1A	3	12
1B	3	8
1C	3	6
1D	3	4
2A	4	12
2B	4	8
2C	4	6
2D	4	4
3A	5	12
3B	5	8
3C	5	6
3D	5	4
4A	6	12
4B	6	8
4C	6	6
4D	6	4



NOTES:

- (1) MINIMUM LUMBER EDGE DISTANCE "a" = 1"
- (2) MINIMUM LUMBER END DISTANCE "b" = 2"
- (3) MINIMUM NAIL ROW SPACING "c" = 2"
- (4) STAGGER NAILS "d/2" BETWEEN PLYS FOR MULTI-PLY MEMBERS (3 PLY OR MORE)
- (5) ALL NAILS ARE 3-1/2" ARDOX SPIRAL NAILS
- (6) DO NOT USE AIR-DRIVEN NAILS



DWG NO TAMN1001-14

STRUCTURAL

COMPONENT ONLY

TO BE USED ONLY
WITH BEAM CALCS
BEARING THE
STAMP BELOW

PROVIDE NAILING

DETAIL NO X SEE

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